December 21, 2021

Traffic Impact Study for the proposed

CANAL CROSSING PHASE 2

City of Canal Winchester, Ohio

prepared for:

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This study was conducted to analyze the impact of the Canal Crossing Phase 2 project in Franklin County, Ohio. Once constructed, it is anticipated that this site will be annexed into the City of Canal Winchester. The proposed development consists of two warehouse buildings totaling approximately 1.14 million square feet to be located at the southwest corner of the intersection of Bixby Road and Rager Road. The proposed warehouse is assumed to be complete and open in 2022. This study includes the projection of traffic volumes to the analysis years, including the estimated traffic to be generated by the proposed warehouse development and the Canal Crossing Phase 1 project. Turn lane warrants were performed at the proposed access driveways. Capacity analyses were performed at the study intersections to determine the impact of the proposed development. A sight distance review was performed at the proposed site driveways.

The following findings were made during the traffic impact study process:

1. Turn lane warrant analysis at the proposed access driveways along Bixby Road indicated that no turn lanes are anticipated to be warranted in the 2022 and 2032 build scenarios.
2. An incremental turn lane warrant analysis found the northwestbound approach to Bixby along US-33 would warrant a right-turn lane as long as the proposed site resulted in a minimum of 17 additional right-turns during the AM peak hour or 4 additional right-turns during the PM peak hour.
3. Capacity analysis indicated that all the proposed access drives on Bixby Road are expected to operate acceptably in the 2022 and 2032 build scenarios.
4. Capacity analyses indicated that all the movements at the intersection of Bixby Road and Rager Road are expected to operate acceptably in the 2022 and 2032, no-build and build scenarios.
5. Capacity analysis indicated that the overall intersection of Winchester Pike and Bixby Road is expected to operate acceptably in the 2022 and 2032 no-build scenarios. With the addition of the estimated site-generated volumes, the overall intersection delay and one of the movements is expected to have an unacceptable level of service with the existing signal timings. Adjustments to traffic signal timings and the addition of a northbound right turn lane on Bixby Road were found to mitigate the increase in delays from the site-generated traffic.
6. Capacity analysis indicated that the westbound right turning movements and the southbound left turning movements at the intersection of US 33 and Bixby Road are expected to experience significant delays in the no-build and build AM peak hour scenarios. Also, the eastbound right turning movements and the northbound left turning movements are expected to experience significant delays in the no-build and build PM peak hour scenarios. This is due to the high background traffic volumes on US 33. It is anticipated that if drivers for these movements find delays to be unacceptable, they will reroute to an alternate travel path. The relatively low number of site vehicles assumed to be turning left from US 33 onto Bixby Road for this study that may reroute to other intersections are not expected to impact operations at other area intersections.

7. Capacity analysis indicated the intersection of Gender Road and Winchester Pike is expected to experience very high delays in both the no-build and build scenarios in both the 2022 and 2032 design years. Because the site generated trip volumes are a low percentage of the 2032 build volumes (2.1% during the AM peak and 1.8% during the PM peak) no improvements are recommended to mitigate the high delays at this intersection as a result of this proposed development. No-build improvements were investigated and included in this report separately to provide guidance on potential improvement options.
8. According to field review, adequate intersection sight distance is available for passenger cars and trucks looking west at Accesses B and C.

The following improvements are recommended as a result of this traffic impact study:

1. Construct the proposed access driveways according to the preliminary site plan. Each of the site driveways should have one entering lane and one exiting lane with signs and channelizing islands within the limits of the driveways to prohibit exiting left turns.
2. Construct a 345-ft northwestbound right-turn lane (including a 50-ft diverging taper) along US-33 at the intersection of Bixby Road.
3. Construct a 350-foot northbound right-turn lane (including 50-ft diverging taper) on Bixby Road at Winchester Pike.
4. Monitor the intersection of Winchester Pike and Bixby Road, making signal timings as needed to address unacceptable delays that are expected in the future design year.

This study was conducted to analyze the impact of the Canal Crossing Phase 2 project in Franklin County, Ohio. The proposed development consists of two warehouse buildings to be located at the southwest corner of the intersection of Bixby Road and Rager Road. In the preparation of the study, traffic counts collected in the study area during peak times were used to develop projected background traffic volumes. Site-generated trips for the proposed warehouse were developed and distributed onto the roadway network based on the ITE Trip Generation Manual and the expected travel patterns to and from this site. Intersection capacity analyses for the projected opening year (2022) and future year (2032) were conducted at the study area intersections. A Project Location Map is provided as Figure 2A.

2.1 DEVELOPMENT DESCRIPTION

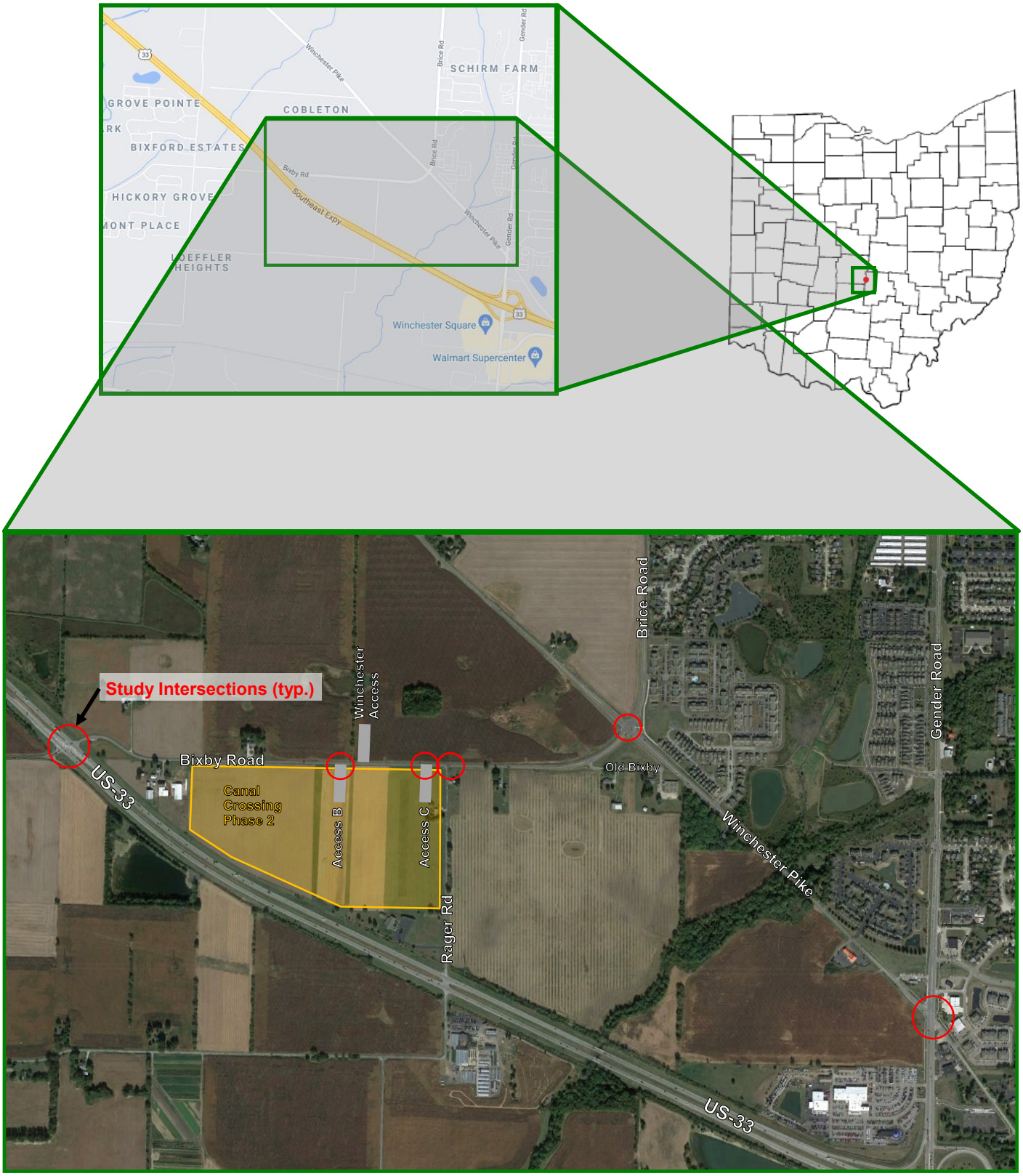
The warehouse development is proposed to be approximately 1.14 million square feet. The proposed development includes two access driveways along Bixby Road. Both of these driveways will restrict exiting left-turns to direct traffic away from the US-33 intersection with Bixby Road. It should be noted, the westernmost access driveway (formerly Access A) has been removed from the site plan due to its proximity to the future Bixby Road and US-33 interchange.

A preliminary site plan is presented in Appendix A of this report.

2.2 STUDY AREA

The study area was determined through coordination with ODOT, Franklin County, the City of Canal Winchester, and the City of Columbus. The study area includes the intersections expected to have the most impact from the increased traffic volumes from the warehouse development. The study area for this analysis includes the following intersections:

- Bixby Road at US 33 (ODOT)
- Bixby Road at Rager Road (FCEO)
- Bixby Road at Winchester Pike (FCEO)
- Winchester Pike at Gender Road (City of Columbus)
- Bixby Road at proposed Access B (FCEO)
- Bixby Road at proposed Access C (FCEO)



Project Location Map

3.1 AREA LAND USE

Area land use immediately surrounding the proposed warehouse site is currently undeveloped with the exception of a few single family homes and farms. The site is located on the west side of the City of Canal Winchester.

3.2 SITE ACCESSIBILITY

Bixby Road is a two-lane roadway that runs east and west along the north side of the proposed site with a posted speed limit of 50 miles per hour. According to ODOT's TIMS mapping system, Bixby Road is classified as major collector road.

Winchester Pike runs northwest and southeast and is classified as a minor arterial. The speed limit on Winchester Pike is 55 mph.

The intersection of Bixby Road/Brice Road and Winchester Pike is signalized. The signal currently operates with protected/permitted left turns for all the approaches. Right turn overlaps are provided on both Winchester Pike approaches. Crosswalks are provided at all four approaches of this intersection. For this study, Winchester Pike at Bixby Road is assumed to run east and west and Bixby Road/Brice Road is assumed to run north and south.

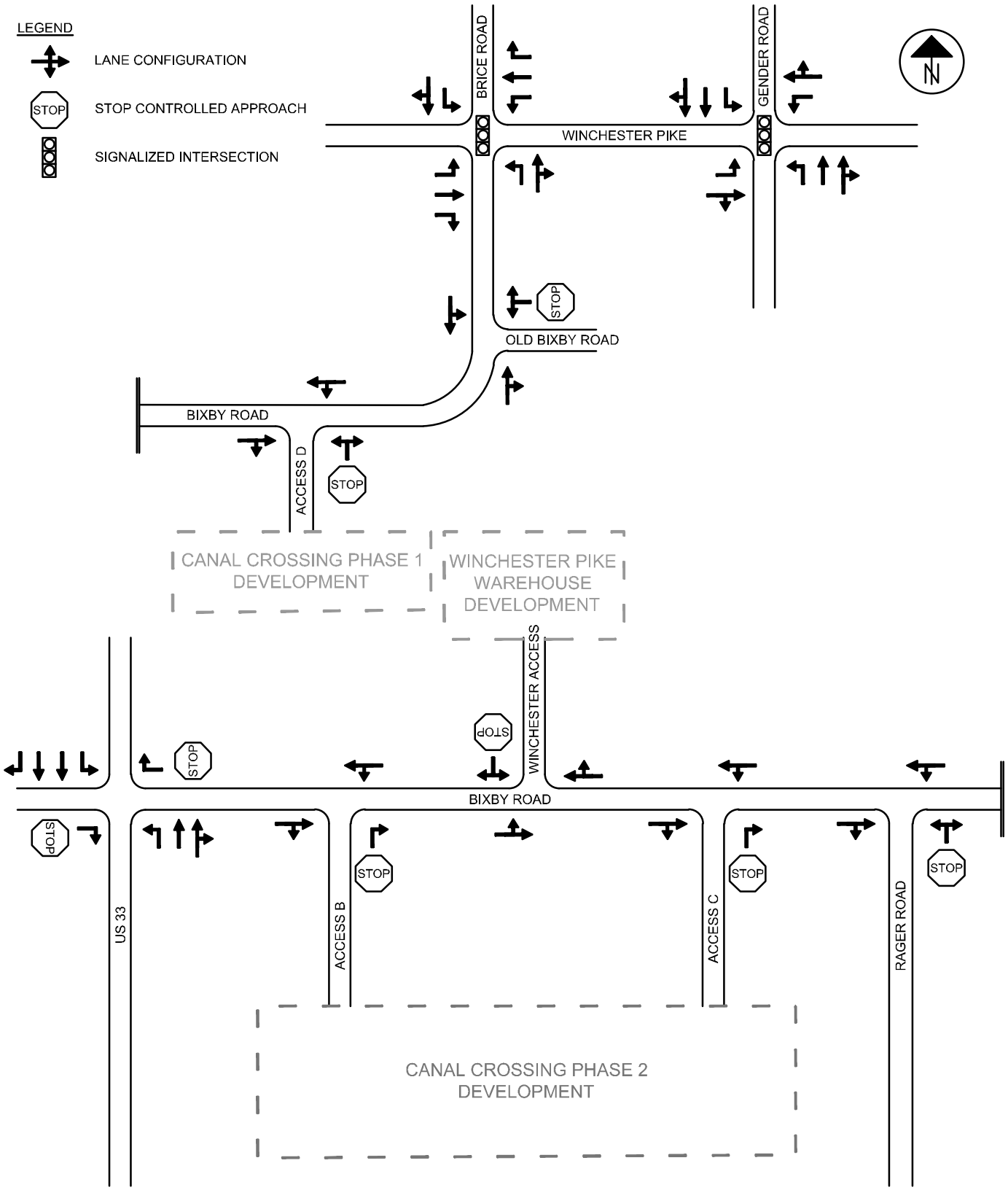
Gender Road runs north and south and is a 5-lane roadway at the study intersection of Winchester Pike and southward towards the US-33 interchange. Gender Road is classified as principal arterial with a posted speed limit of 35 mph south of Winchester Pike and 50 mph north of Winchester Pike.

The intersection of Winchester Pike and Gender road is signalized. The signal currently operates with protected/permitted left turns on the northbound and westbound approaches. Pemitted left turns are allowed for the southbound and eastbound approaches. Crosswalks are provided at all four approaches of this intersection.

Rager Road runs north and south along the east side of the proposed site and is classified as local road. The speed limit on Rager Road is not posted.

US 33 runs along the southwest side of the proposed site and is classified as an expressway. The intersection of US 33 and Bixby Road is two-way stop controlled with stop control along Bixby Road. Both approaches of Bixby Road at this intersection are restricted to right turns only.

The lane configuration and traffic control at the study intersections are presented in Figure 3A.



Lane Configuration & Traffic Control- Study Area Intersections

3.3 EXISTING TRAFFIC VOLUMES

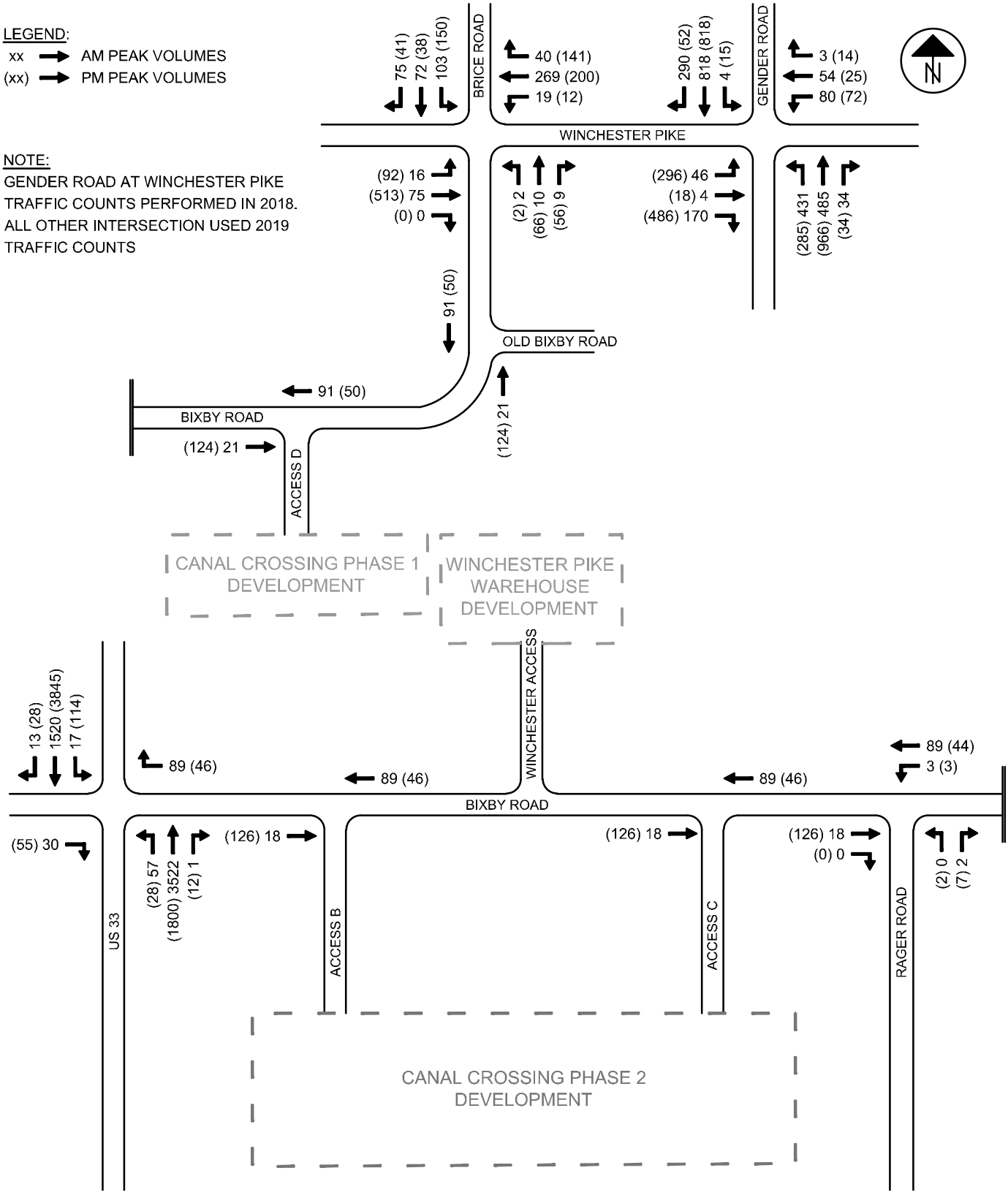
Turning movement counts processed by Miovision were collected by the Kleingers Group at the intersections of Bixby Road with Winchester Pike and Rager Road from 6:00 am to 10:00 am and from 3:00 pm to 7:00 pm on Thursday, June 17, 2021. Also, based on the peak hours observed at these two intersections, manual turning movement counts were performed from video collected on the same date at the intersection of US 33 and Bixby Road.

Smart Services, Inc. performed a traffic access study for Canal Crossing Phase 1 project. The traffic counts for that project were performed in 2019 before the COVID-19 pandemic. In comparing the recently collected traffic count data at the intersection of Bixby Road and Winchester Pike to traffic counts conducted in the previous study, the volumes in the recent counts were noted to be lower during the AM & PM peak hour than counts performed during pre-COVID time periods. As a result, the traffic counts at the intersections of Bixby Road with Winchester Pike and Rager Road from the Smart Services study were used for this study.

For the intersection of US 33 at Bixby Road, ODOT certified traffic counts from FRA/FAI 33 (PID 111460), the 2019 Smart Services traffic counts, and the June 2021 traffic count data collected for this study were used to estimate pre-COVID traffic volumes. To estimate these volumes, the 2019 Smart Services traffic counts at the intersection of Bixby Road and Rager Road were translated to the intersection of US 33 and Bixby Road since there is minimal existing development between the two intersections. All 2019 traffic volumes on westbound Bixby Road are considered to be right turning movements onto northbound US 33. The 2019 traffic volumes on eastbound Bixby Road were distributed between the northbound right turn movement and southbound left turn movement at the intersection of US 33 and Bixby Road based on the proportions of counted traffic for those two movements in the June 2021 traffic counts. The turning movement volumes for the northbound left, the southbound right, and the eastbound right turn movements were taken directly from the June 2021 traffic counts. The traffic volumes for each of these movements were subtracted as applicable from the ODOT certified 2019 Existing AM and PM Volumes on US 33 just south of Bixby Road to calculate the through volumes on US 33 at Bixby Road. The peak hour traffic volumes for the study area intersections are presented in Figure 3B.

Traffic count data for the intersection of Gender Road and Winchester Pike was provided by the City of Columbus. Smart Services collected traffic count data at this intersection in 2018 for a previously performed traffic impact study for a separate development. These 2018 counted traffic volumes were used as the counted traffic volumes at this intersection for this study.

Traffic count data collected by the Kleingers Group, ODOT certified traffic counts, and a copy of the traffic access study performed by Smart Services, Inc. for the Canal Crossing Phase 1 project are included in Appendix B of this report.



Counted Traffic Volumes

4.1 PROJECTED BACKGROUND TRAFFIC VOLUMES

The counted traffic volumes in Figure 3B represents the 2019 background volumes for this study. The Mid-Ohio Regional Planning Commission (MORPC) provided linear annual growth rates for the Canal Crossing Phase 1 project to the Smart Services, Inc. Based on the correspondence from MORPC, these growth rates were utilized for this study. Table 4A shows the growth rates and corresponding factors that were applied to the 2019 counts along Bixby Road, Brice Road and Winchester Pike.

Segment	Linear Annual Growth Rate	2019 to 2022 Factor	2019 to 2032 Factor
Bixby Road East of Rager Road	0.90%	1.027	1.117
Bixby Road West of Rager Road	1.00%	1.03	1.13
Rager Road South of Bixby Road	3.00%	1.09	1.39
Winchester Pike East of Bixby Road	1.20%	1.036	1.156
Brice Road North of Winchester Pike	2.40%	1.072	1.312
Winchester Pike West of Bixby Road	1.10%	1.033	1.143
Bixby Road South of Winchester Pike	0.90%	1.027	1.117

Table 4A: MORPC Growth Rates and Projection Factors

The growth factors in Table 4A were applied to the 2019 background volumes to estimate the opening year (2022) and the design year (2032) background traffic volumes at the intersections of Bixby Road with Winchester Pike and site access driveways. The certified traffic counts provided by ODOT show that the linear annual growth rate for no-build US 33 ADT volumes is approximately 1.5% per year. Based on the previous correspondence, a 1.5% linear annual growth rate was used to project the US 33 traffic volumes to the opening year and design year using factors of 1.045 and 1.195, respectively. The growth factors from Table 4A west of Rager Road were used to estimate the eastbound and westbound background traffic volumes at the intersection of US 33 and Bixby Road for the opening year and design year.

At the intersection of Winchester Pike and Gender Road, the 2018 Smart Services traffic counts (included in Figure 3B) were projected using the MORPC growth rates obtained from the same study for which the 2018 counts were originally collected. These MORPC growth rates are presented in Table 4B. These growth rates were used to project the 2018 counted traffic volumes at the Gender Road and Winchester Pike intersection to the 2022 and 2032 design years. The calculated factors used are presented in Table 4B.

Segment	Linear Annual Growth Rate	2018 to 2022 Factor	2018 to 2032 Factor
Winchester Pike East of Gender Road	1.00%	1.040	1.140
Gender Road North of Winchester Pike	1.60%	1.064	1.224
Winchester Pike West of Gender Road	1.80%	1.072	1.252
Gender Road South of Winchester Pike	1.70%	1.068	1.238

Table 4B: MORPC Growth Rates and Projection Factors, Gender Road@Winchester

The opening year and projected future year peak hour background traffic volumes are presented in Figures 4A and 4B, respectively.

4.2 PROJECTED NO-BUILD TRAFFIC VOLUMES

At the time of this traffic impact study, many other developments nearby are in the planning or construction stages. These developments will generate additional traffic volumes. These volumes were added to the study as additional background traffic volumes. Below is a list of the known additional developments with a brief description.

- *Turkey Hill—Gas Station & Convenience Store*
  - ⇒ Western corner of Gender Road and Winchester Pike
- *650 Winchester Pike—Warehouse Development*
  - ⇒ Western corner of Gender Road and Winchester Pike (tied into Turkey Hill development)
- *Sheetz—Gas Station and Convenience Store*
  - ⇒ Southern corner of Gender Road and Winchester Pike
- *5100 Ebright Road—Single-Family and Multi-Family Housing Development*
  - ⇒ Northeast corner of US-33 and Ebright Road
- *Winchester Pike—Multi-Family Housing Development*
  - ⇒ South side of Winchester Pike, access opposite of Blackmer Ridge Blvd
- *Canal Winchester—Warehouse Development*
  - ⇒ Western corner of Bixby Road and Winchester Pike
- *Lamp South—Single-Family and Multi-Family Housing Development*
  - ⇒ South side of Shannon Road along eastern and western sides of Brice Road
- *Canal Crossing Phase 1—Warehouse Development*
  - ⇒ South corner of Bixby Road and Winchester Pike (directly east of Rager Road)

Each of these developments contributed to the additional background volume figure presented in Figure 4C. Traffic for these developments was referenced from completed traffic impact studies or memorandums of understanding when possible. Traffic projections at the study intersections included in this report were estimated where gaps in available information existed. The site generated trips for each development are detailed in Appendix C of this report.

One development expected to generate additional background volumes which trip generation was performed for in this report was the Canal Crossing Phase 1 project. The developer provided updated information on the proposed tenants at the Canal Crossing Phase 1 project. These tenants are expected to operate in accordance with typical warehousing and distribution centers. A total of 200 employees are expected to be working at Canal Crossing Phase 1. The Institute of Transportation Engineers' Trip Generation Manual has data for LUC 150 – Warehousing that generally matches the characteristics of the proposed development. A description of this land use is included in Appendix D of this report. Datasheets for the AM and PM peak hours of the adjacent street traffic are also attached. This development is anticipated to generate truck trips during both the AM and PM peak hours. The truck trip percentages were estimated using Appendix D from the ITE Trip Generation Manual, 10th Edition Supplement. A summary of the truck and passenger car trips for the proposed 200 employee warehouse facility during the weekday AM and PM peak hours are presented in Table 4C.

ITE Code	Land Use	Distribution	Peak	% of Total Trips	Enter	Exit	Total
150	Warehousing 200 Employees	Total Trips	AM	100%	78	31	109
			PM	100%	46	81	127
		Truck Trips	AM	13%	10	4	14
			PM	15%	7	12	19
		Passenger Car Trips	AM	87%	68	27	95
			PM	85%	39	69	108

Table 4C: Weekday, Trip Generation Summary- Canal Crossing Phase 1 Project

The total trips from Table 4C were distributed in accordance with the trip distribution used by Smart Services, Inc. in the traffic access study for the Canal Crossing Phase 1 project. The Canal Crossing Phase 1 traffic volumes are included in the additional background volumes presented in Figure 4C and attached in Appendix C.

These additional traffic volumes were combined with the projected 2022 and 2032 background traffic volumes to derive the projected 2022 and 2032 no-build scenario traffic volumes. The 2022 and 2032 no-build scenario traffic volumes are presented in Figures 4D and 4E respectively.

4.3 ESTIMATED SITE-GENERATED TRIPS

The Institute of Transportation Engineers' Trip Generation Manual has data for LUC 150 – Warehousing that generally matches the characteristics of the proposed development for Canal Crossing Phase 2. Datasheets for the AM and PM peak hours of the adjacent street traffic are also attached. This development is anticipated to generate truck trips during both the AM and PM peak hours. The truck trip percentages were estimated using Appendix D from the ITE Trip Generation Manual, 10th Edition Supplement. A summary of the truck and passenger car trips for the proposed 1,140,000 SF warehouse facility during the weekday AM and PM peak hours are presented in Table 4D.

ITE Code	Land Use	Distribution	Peak	% of Total Trips	Enter	Exit	Total
150	Warehousing 1,140,000 SF	Total Trips	AM	100%	125	37	162
			PM	100%	44	121	165
		Truck Trips	AM	13%	16	5	21
			PM	15%	7	18	25
		Passenger Car Trips	AM	87%	109	32	141
			PM	85%	37	103	140

Table 4D: Weekday, Trip Generation Summary- Canal Crossing Phase 2 Project

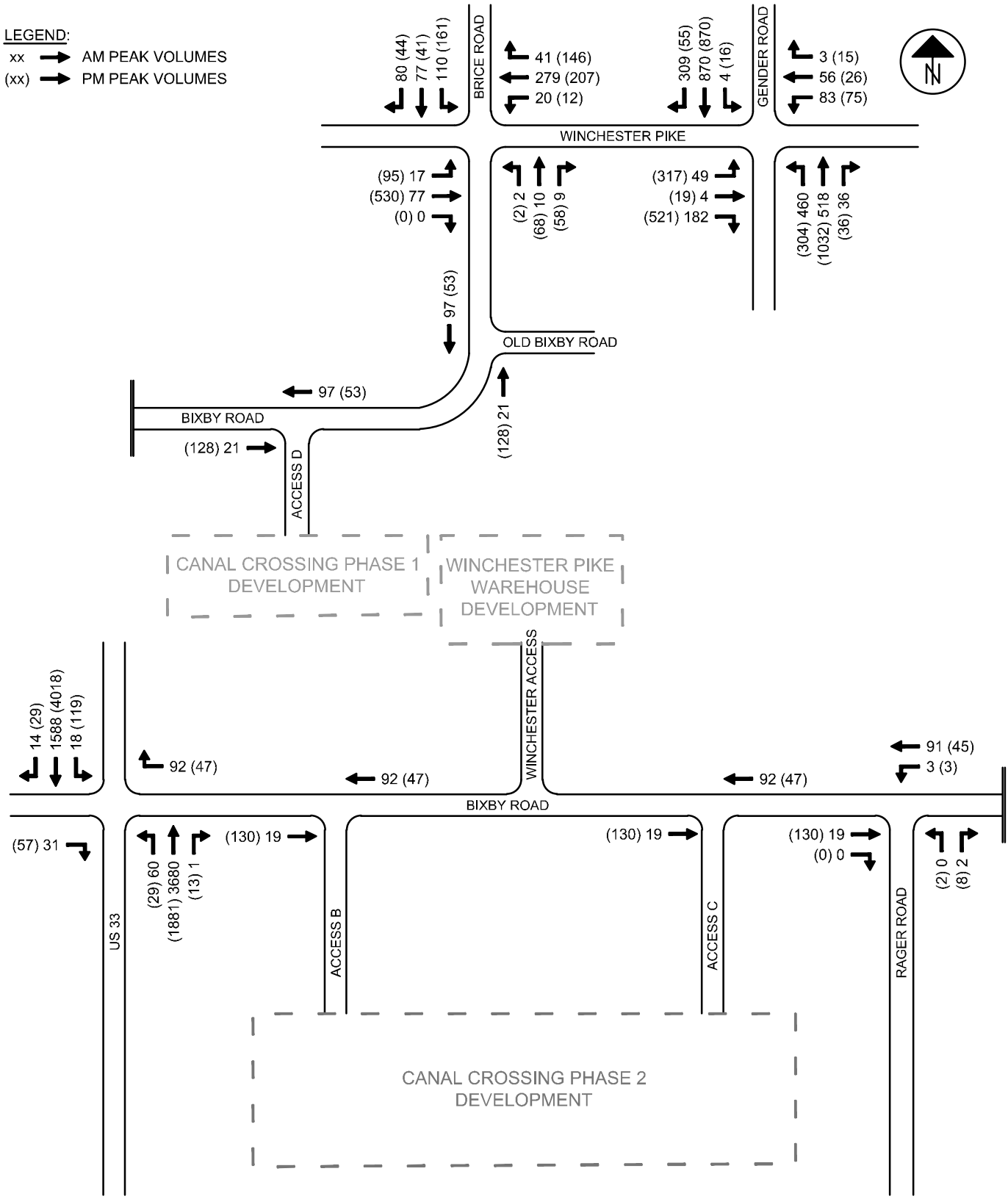
4.4 TRIP DISTRIBUTION

A trip distribution was developed based on the estimations of expected travel patterns to and from this site. It is anticipated that the majority of site traffic will be oriented to and from east of Bixby Road. The estimated site trip distribution for passenger cars and trucks are presented in Figures 4F and 4G, respectively. The passenger car trips and truck trips from Table 4D were distributed at the study intersections in accordance with Figures 4F and 4G, respectively. The resulting passenger car trips and truck trips are presented in Figures 4H and 4I, respectively. The total site-generated trips (passenger cars and trucks) are presented in Figure 4J.

4.5 PROJECTED BUILD TRAFFIC VOLUMES

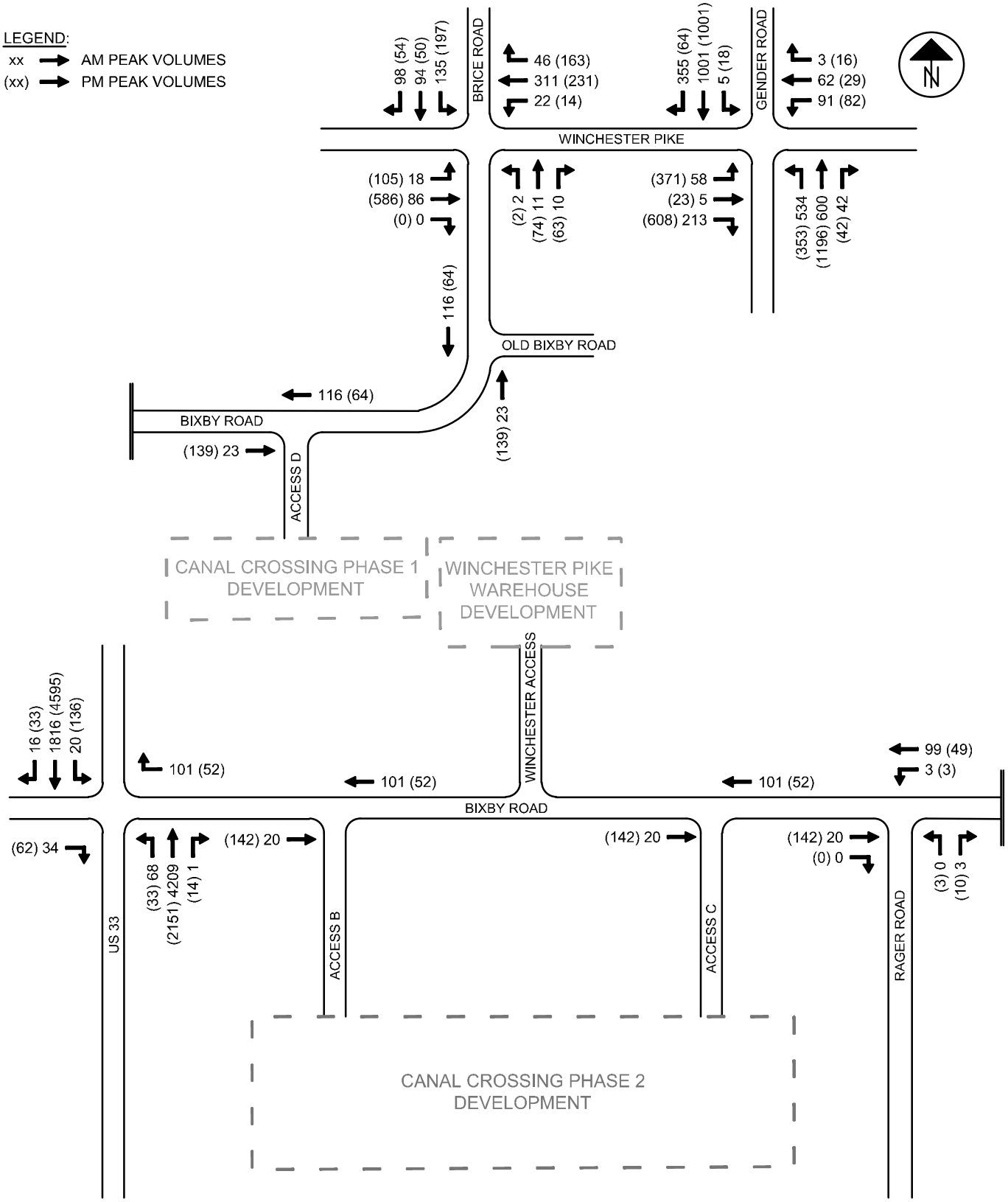
The 2022 and 2032 no-build traffic volumes were combined with the site-generated traffic volumes to derive the projected 2022 and 2032 build scenario traffic volumes. The 2022 and 2032 build scenario traffic volumes are shown in Figures 4K and 4L, respectively.

The total traffic volume calculations are included in Appendix E of this report.

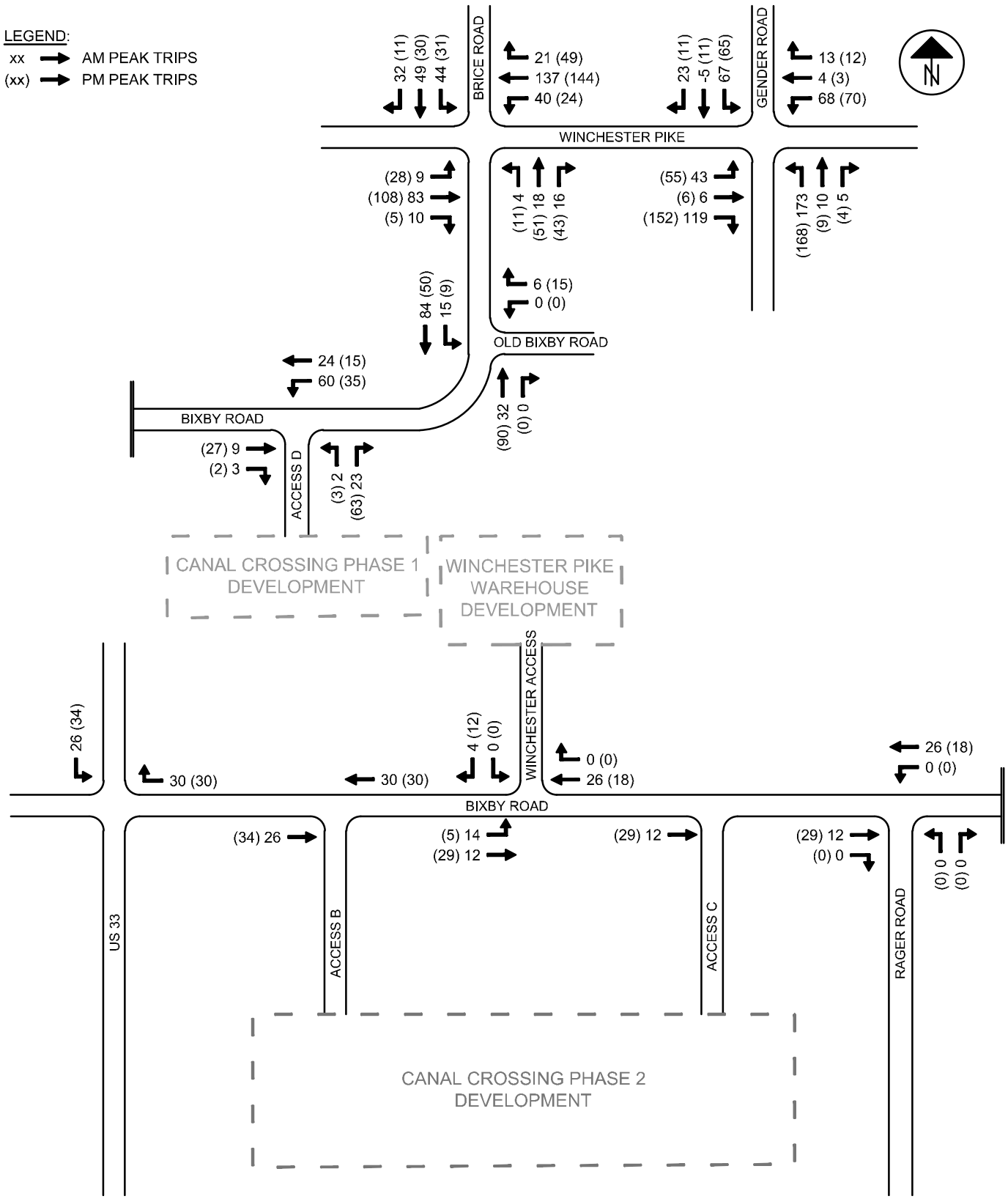


2022 Background Traffic Volumes

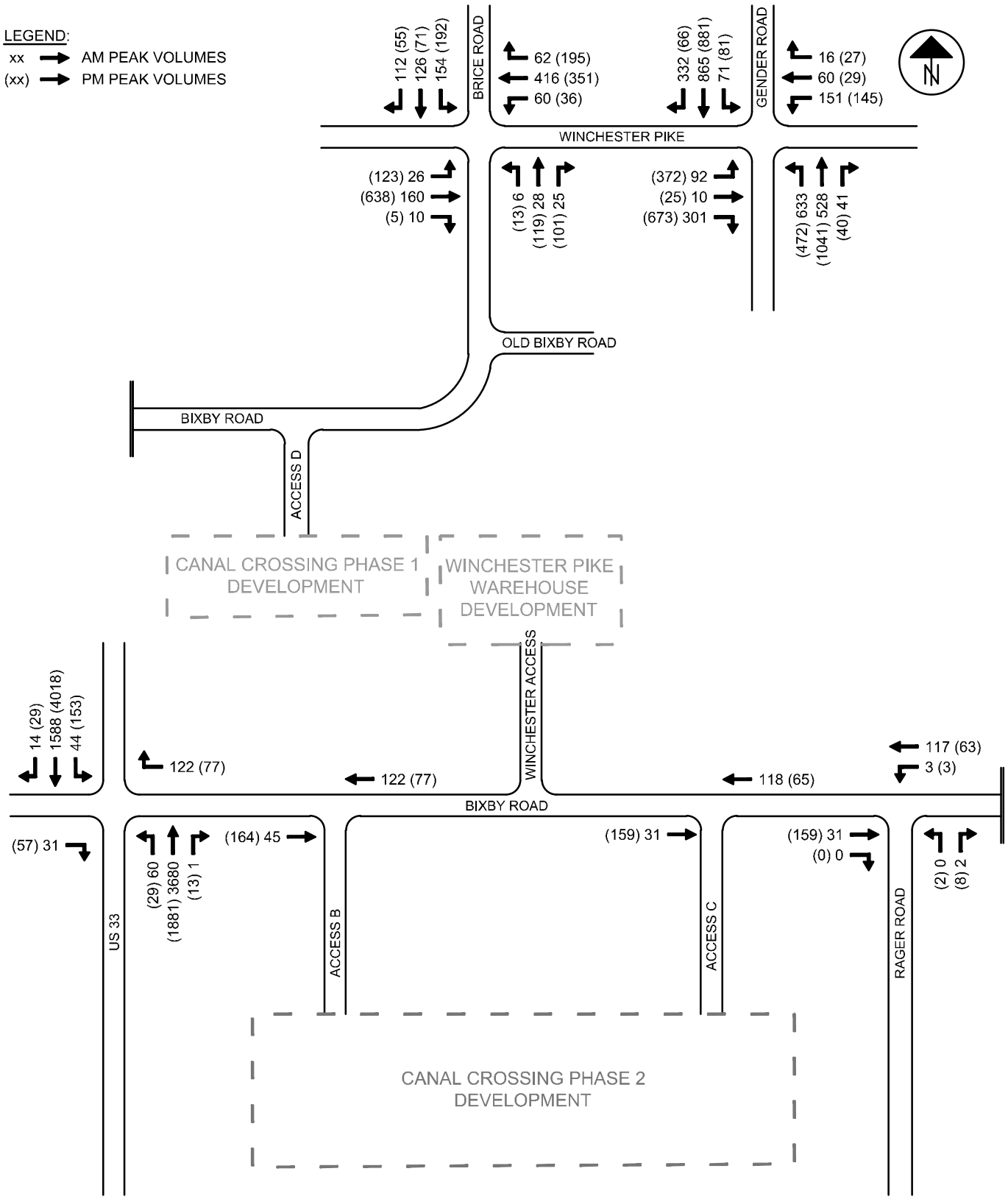
FIGURE 4A
DECEMBER 21, 2021



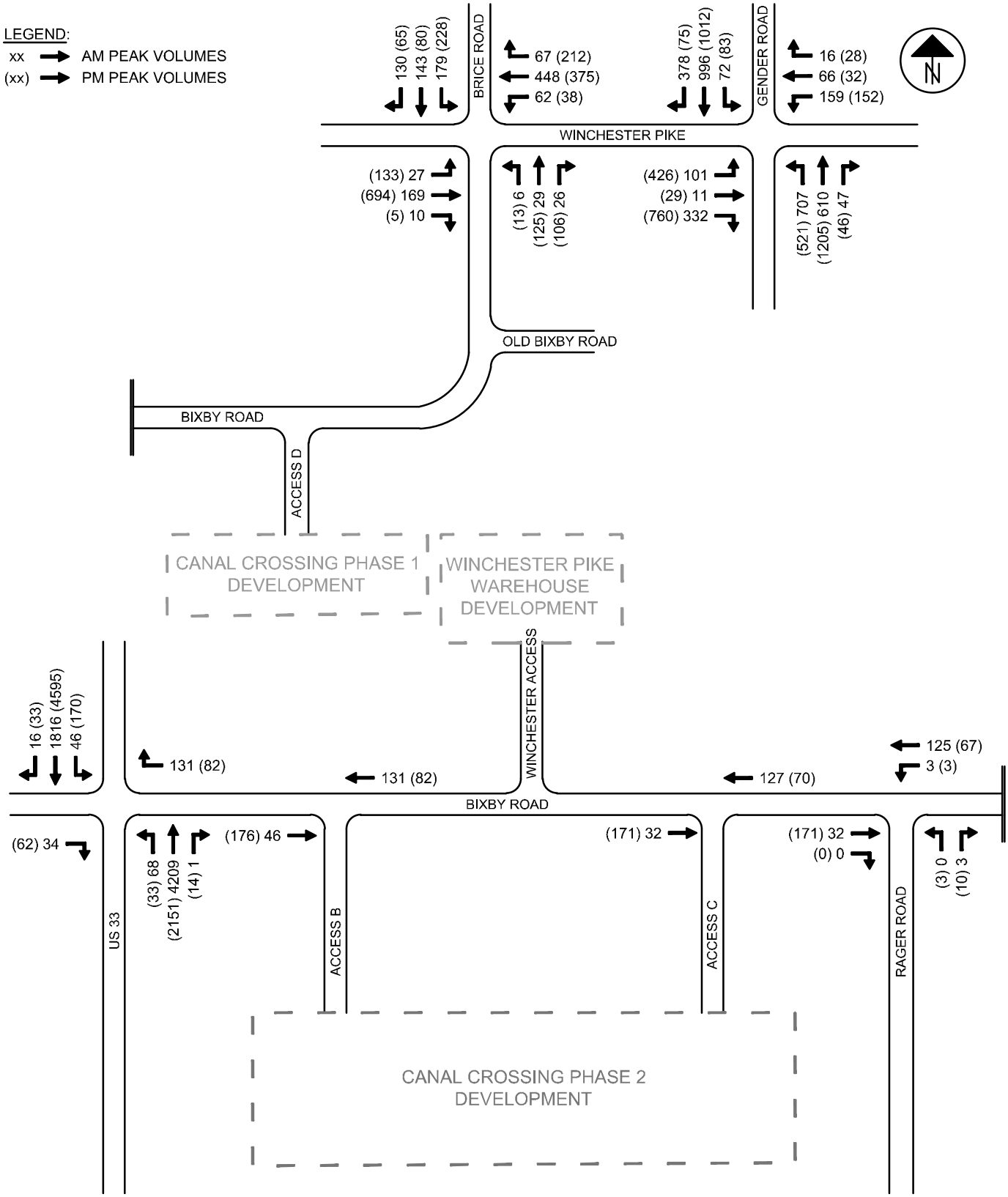
2032 Background Traffic Volumes



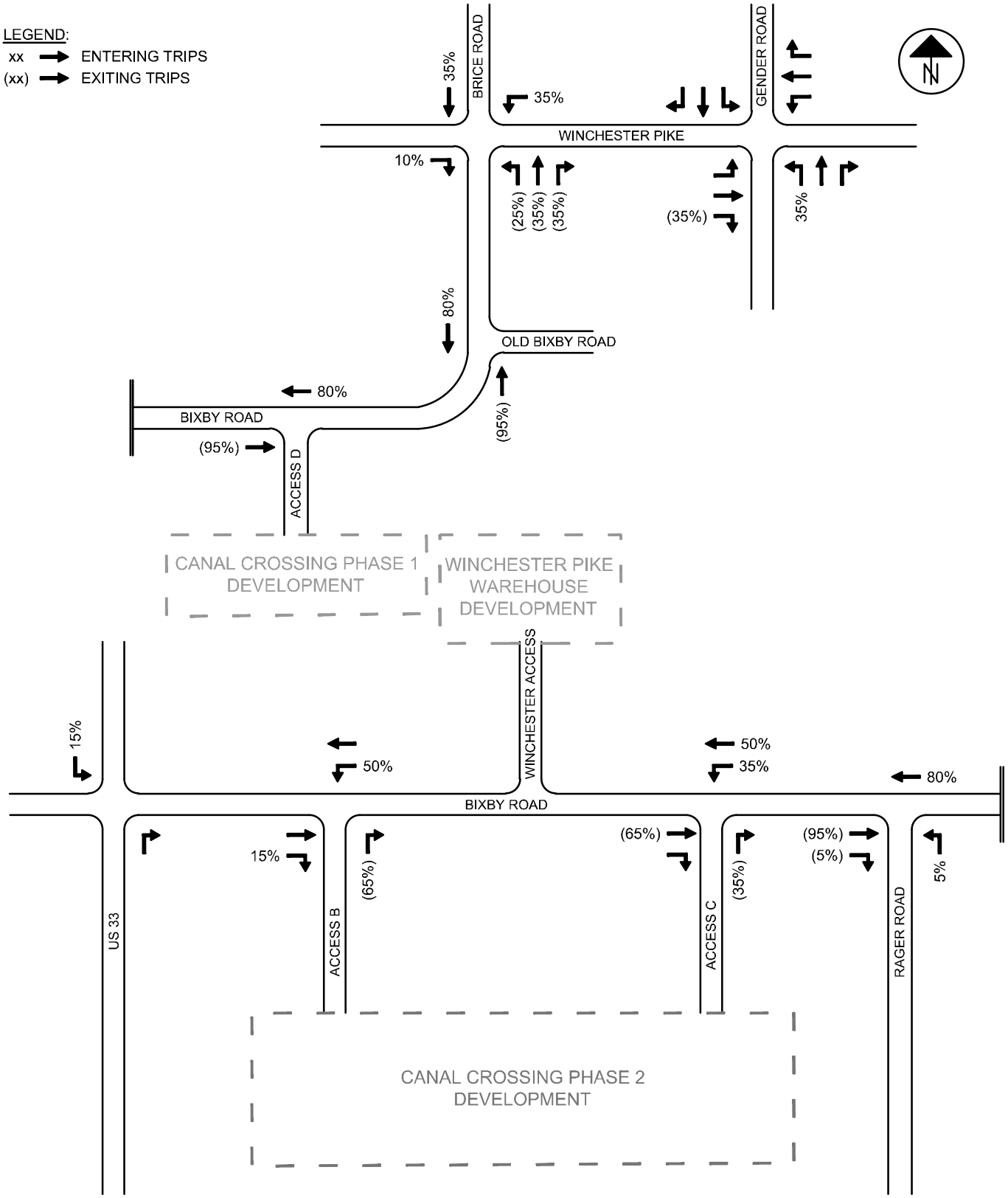
Additional Background Volumes



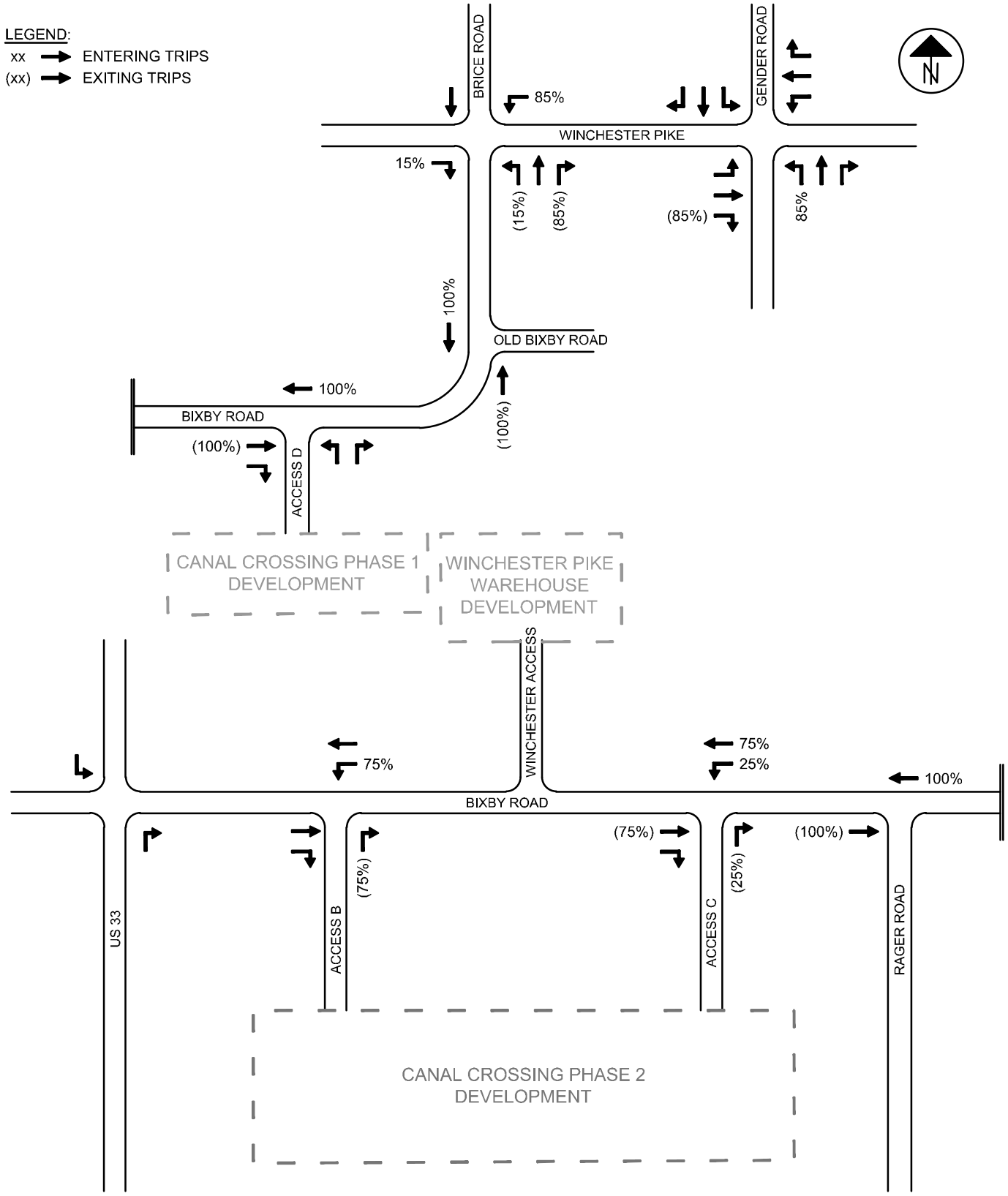
2022 No-Build Traffic Volumes



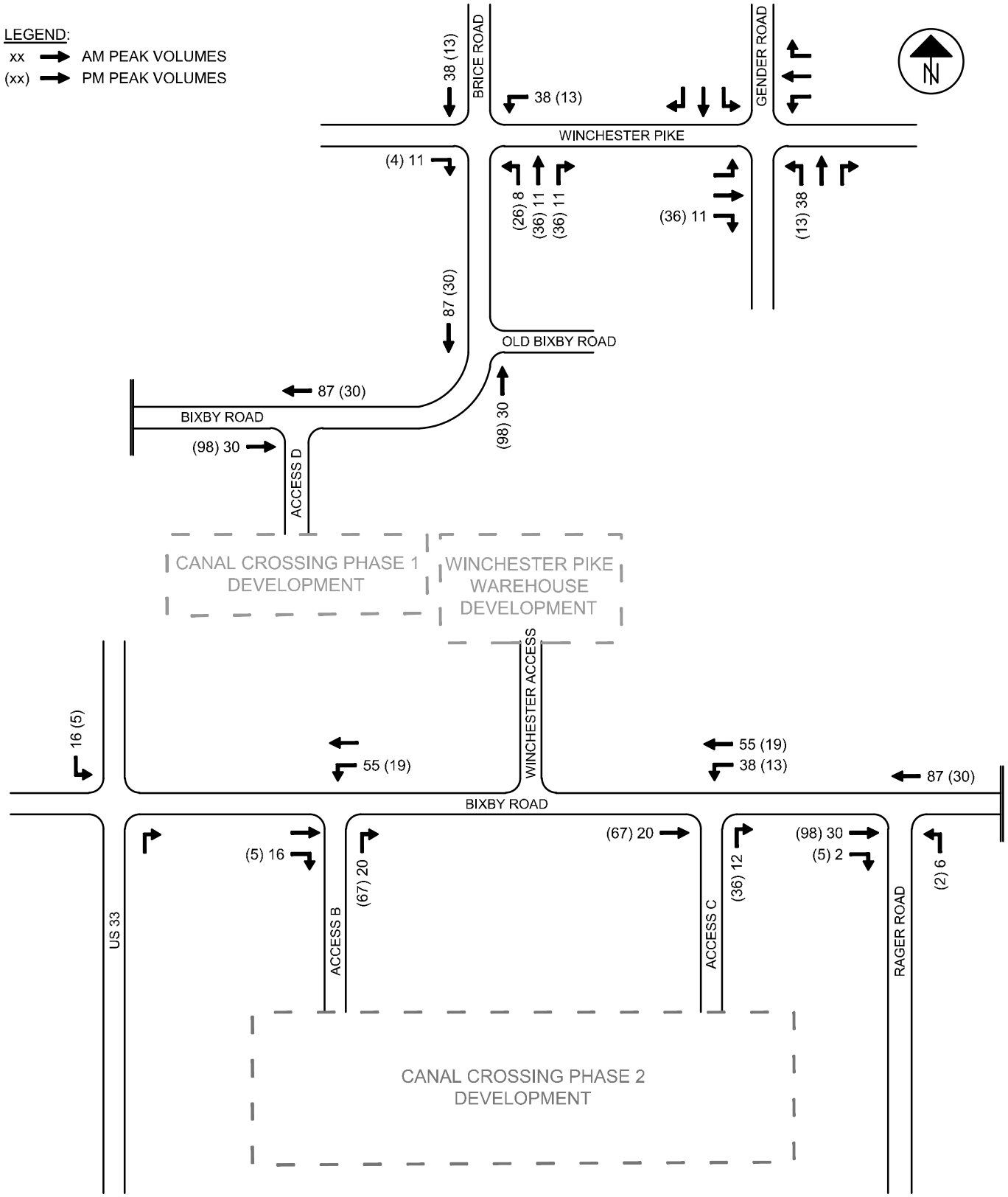
2032 No-Build Traffic Volumes



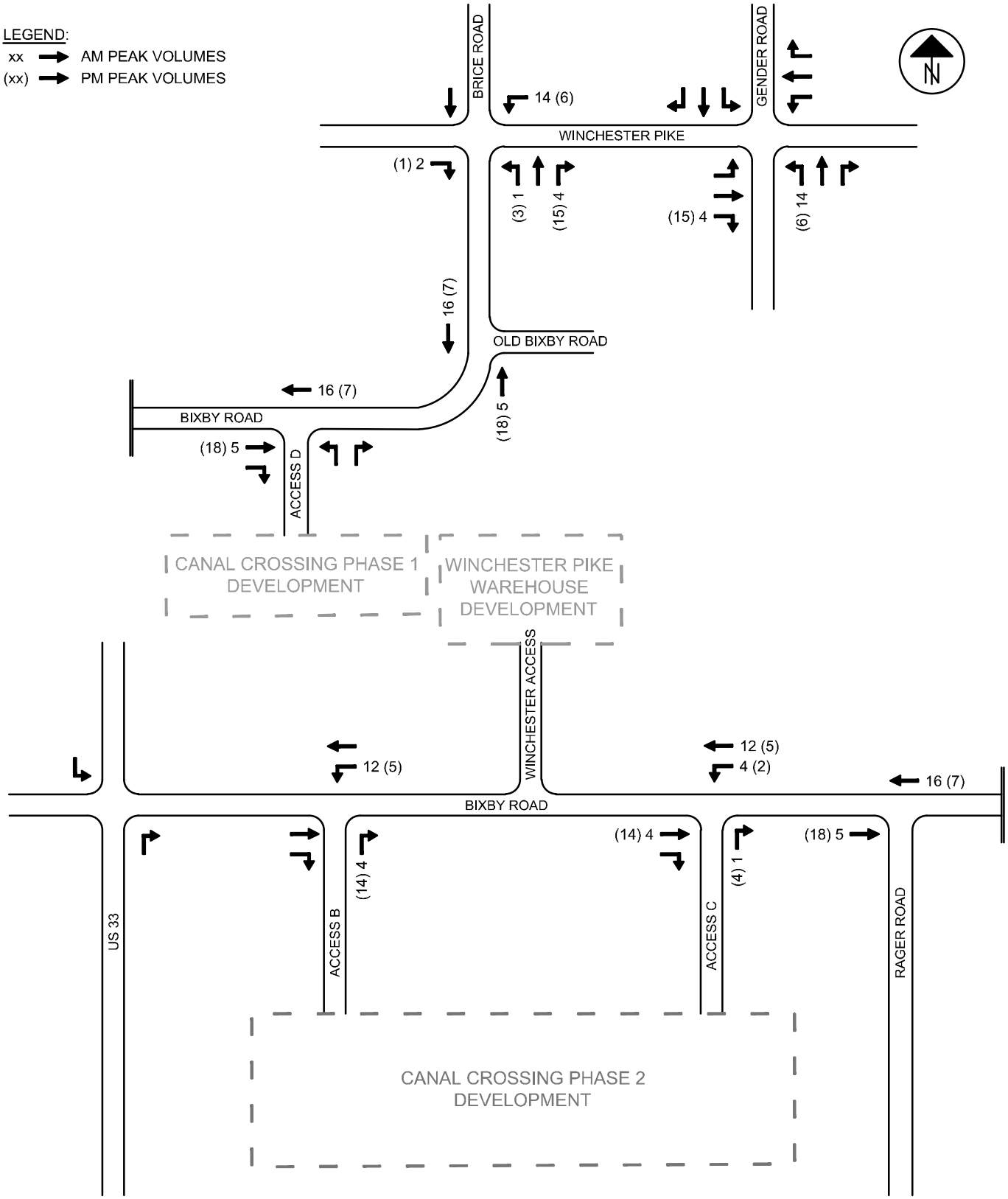
Trip Distribution - Passenger Cars



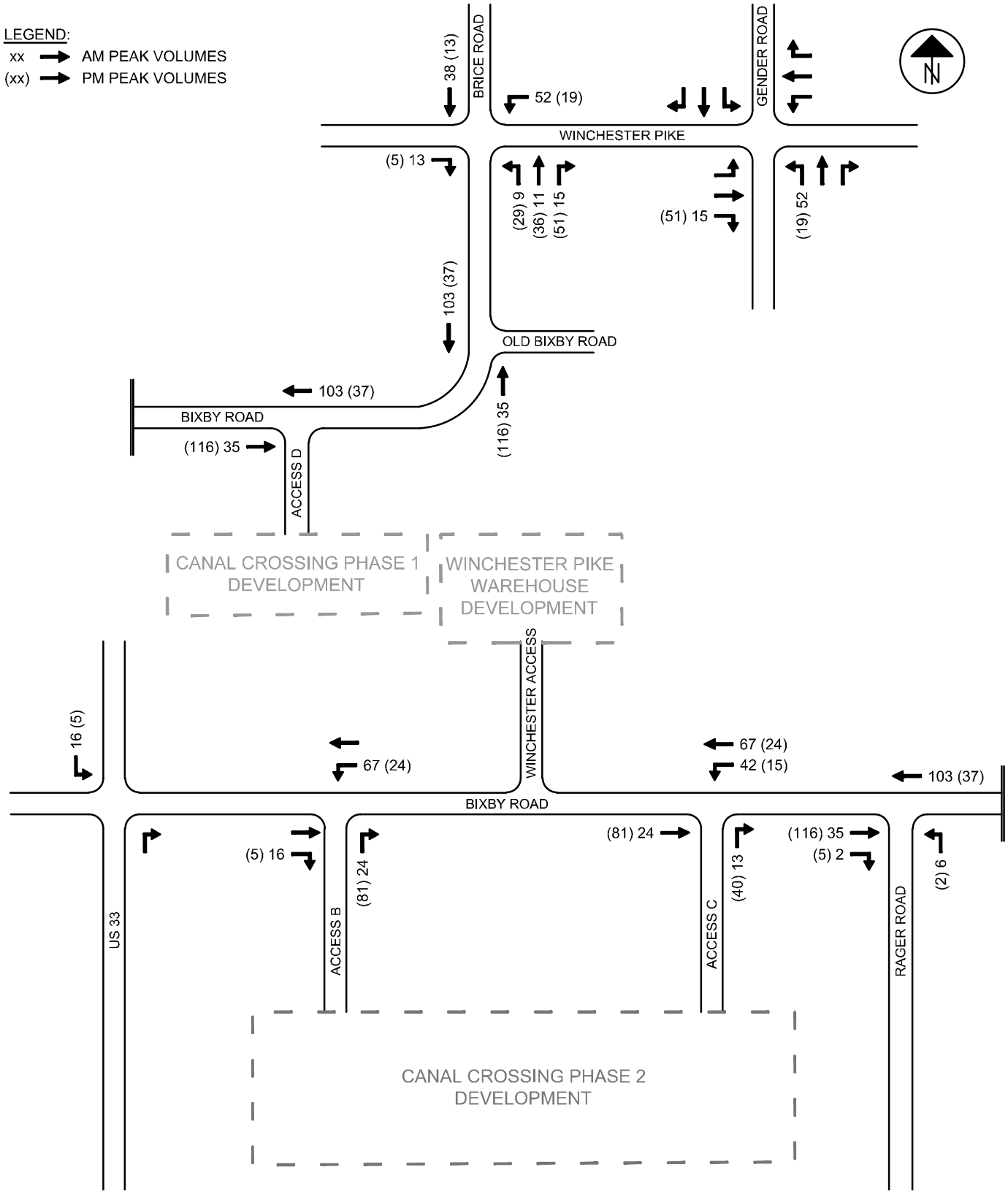
Trip Distribution - Trucks



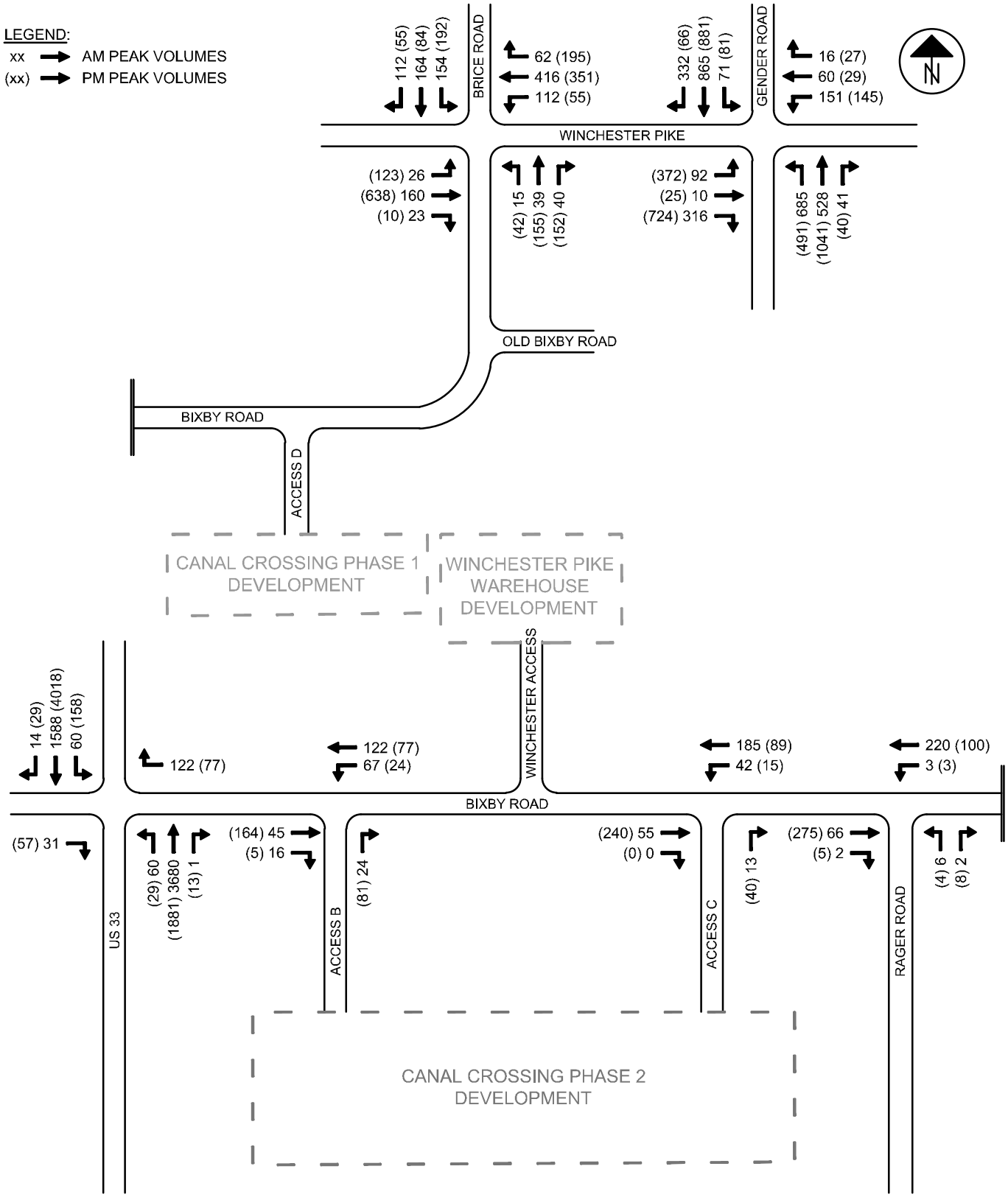
Site-Generated Trips - Passenger Cars



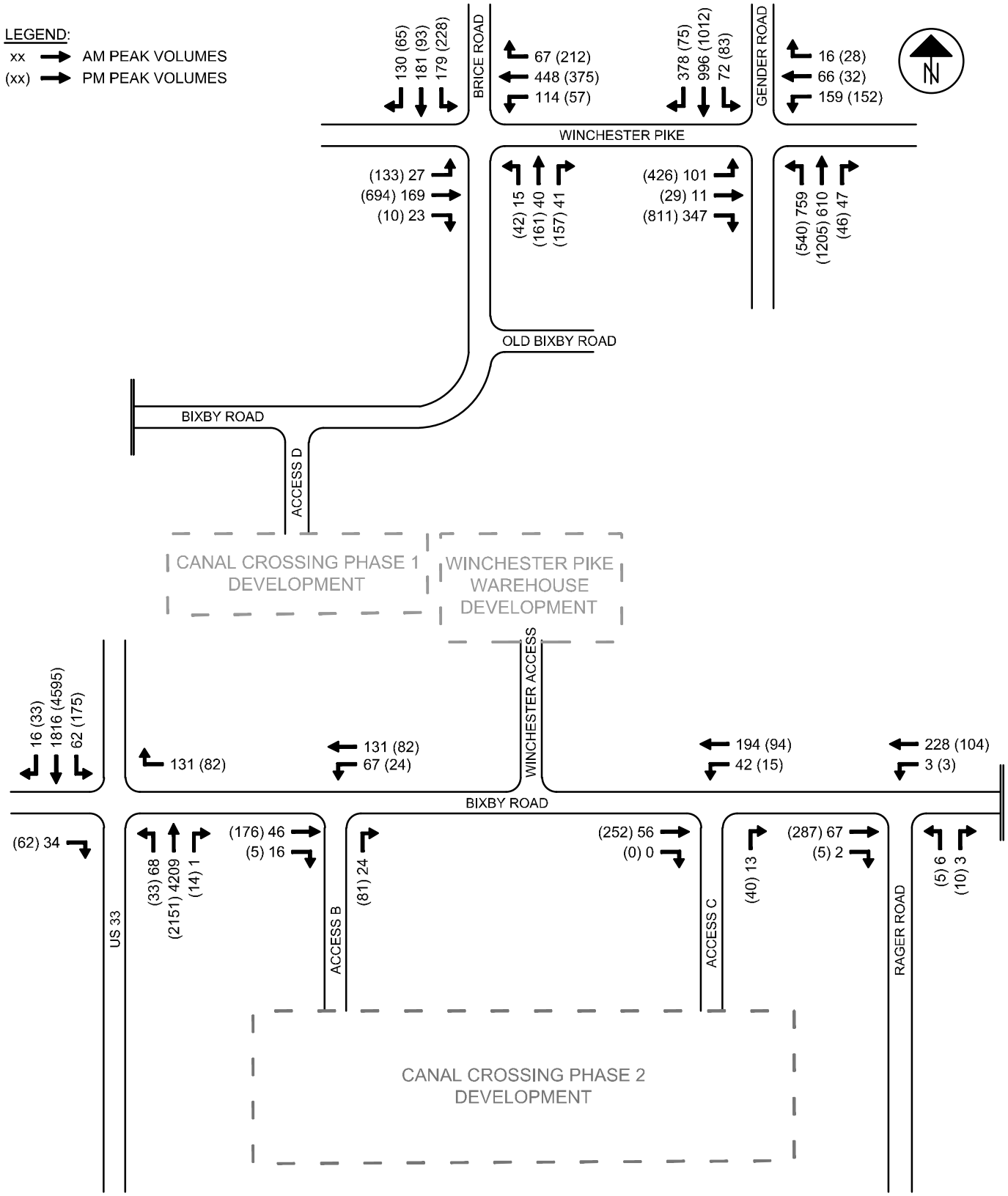
Site-Generated Trips - Trucks



Total Site-Generated Trips - Passenger Cars & Trucks



2022 Build Traffic Volumes



2032 Build Traffic Volumes

The 2022 and 2032 no-build and build scenario traffic volumes were analyzed at the study area intersections to determine the impacts of the proposed development in the area. Turn lane warrants were analyzed at the proposed access drives. Synchro capacity analysis software was used to determine Level of Service (LOS) of the intersection of Winchester Pike and Bixby Road as well as Winchester Pike at Gender Road based on the correspondence with Franklin County Engineer's Office and The City of Columbus. HCS capacity analysis software was used to determine the LOS of the remaining study area intersections. The LOS represents an intersection's measure of effectiveness and is used to determine the impacts on the intersection from the proposed development. LOS values range from "A" (best) to "F" (failing). A sight distance review was performed at the proposed site driveways. Recommended improvements are based upon the results of the above described analyses.

5.1 TURN LANE WARRANT ANALYSES

A turn lane warrant analysis was performed at the proposed access drives along Bixby Road. Warrant analyses were performed according to the guidelines and the charts found in ODOT Location and Design Manual. Turn lane warrant charts and calculations are included in Appendix F of this report.

According to the analysis, no turn lanes are anticipated to be warranted at the proposed access drives along Bixby Road in the 2032 build scenario.

In response to a comment from ODOT, a turn lane warrant sensitivity analysis was investigated on US-33 for the northwestbound approach to Bixby Road. According to the analysis, if 18 vehicles were to make a right-turn on this approach the turn lane would be warranted. This would require 17 additional vehicles during the 2032 AM peak hour or 13.6% of entering site traffic. For the 2032 PM peak hour, this would require 4 additional vehicles or 2.3% of entering site traffic.

Based on the low volume of the proposed site traffic required to warrant a right-turn lane along US-33 at Bixby and due to the high speeds on US 33, it is recommended to construct this right-turn lane. This right turn lane shall be 345-ft in length (including the 50-ft diverging taper) based on the ODOT Location and Design Manual charts 401-9 and 401-10 for a 60-mph design speed.

5.2 CAPACITY ANALYSES

The projected traffic volumes were analyzed, using HCS capacity analysis software, for the unsignalized study intersections. Synchro capacity analysis software was used to analyze the intersection of Winchester Pike and Bixby Road using the signal timings provided by Franklin County. Additionally, Synchro capacity analysis software was used to analyze the intersection of Winchester Pike and Bixby Road using signal timings provided from the City of Columbus. The capacity analysis reports for all the scenarios are included in Appendix G of this report.

Proposed Access Driveways at Bixby Road

According to the analysis, all the movements at the intersections of Bixby Road with the proposed access drives are expected to operate acceptably in the 2022 and 2032 build scenarios.

Winchester Pike at Bixby Road

According to the analysis, the overall intersection of Winchester Pike and Bixby Road is expected to operate acceptably in the 2022 no-build and build scenarios. The 2032 no-build scenario is expected to operate acceptably, but the 2032 build volumes result in unacceptable operation. During the PM peak hour, the eastbound thru movement is expected to operate at LOS "F" and the overall intersection is expected to operate at LOS "D".

Additional analysis was performed with optimized signal timings for the future design year, PM peak hour build scenario. These optimized signal timings reduced the eastbound thru movements delay to acceptable levels. However, the overall intersection remains at an unacceptable LOS "D". An additional analysis was performed with a northbound right turn lane on Bixby Road. The addition of this turn lane brings the overall intersection to an acceptable LOS "C". Per the ODOT L&D Manual, the calculated turn lane length is 395 feet (250 feet storage + 145 feet decel), including a 50-foot diverging taper, based on a 50 mph design speed and an assumed signal cycle length of 120 seconds. Due to the available distance along Bixby Road between Winchester Pike and Old Bixby Road, the turn lane length will be limited to approximately 350 feet, including 50-foot diverging taper.

Rager Road at Bixby Road

According to the analysis, all the movements at the intersection of Bixby Road and Rager Road is expected to operate acceptably in the 2022 and 2032, no-build and build scenarios.

US 33 at Bixby Road

According to the analysis, the westbound right turning movements and the south left turning movements at the intersection of US 33 and Bixby Road are expected to experience significant delays in the no-build and build AM peak hour scenarios. Also, the eastbound right turning movements and the northbound left turning movements are expected to experience significant delays in the no-build and build PM peak hour scenarios. This is due to the high background traffic volumes for the northbound and southbound thru movements on US 33. It is anticipated that if drivers for these movements find delays to be unacceptable, they will reroute to an alternate travel path. The relatively low number of site vehicles assumed to be turning left from US 33 onto Bixby Road for this study that may reroute to other intersections are not expected to impact operations at other area intersections.

Gender Road at Winchester Pike

According to the analysis, the overall intersection of Gender Road at Winchester Road is expected to operate with significant delays in both the no-build and build scenarios. These delays are a result of significant background volumes. The site generated volumes result in 2.1% and 1.8% of the 2022 build volumes for the AM and PM peak hours, respectively. The analysis included an analysis of optimized signal timings with a cycle length of 150 seconds which reduced the overall intersection delay in the build scenario analysis back near the no-build analysis.

No-build improvements were investigated to determine what roadway improvements could be constructed to reduce delays at this intersection. According to the analysis, the addition of a second northbound left-turn lane, two eastbound right-turn lanes, and a southbound right-turn lane were found

to significantly reduce overall delays. The northbound left-turn and eastbound right-turn should operate concurrently. The eastbound left-turns and southbound left-turns should remain permissive only. These improvements to not achieve acceptable city standards but do reduce delays significantly. Since these improvements are not directly related to the proposed development, they are not included as recommendations to be constructed as part of this development.

Tables 5A, 5B and 5C summarize the results of the capacity analyses at the study intersections.

Analysis Scenario					Eastbound			Westbound			Northbound			Southbound			INT.
					LT	THRU	RT	LT	THRU	RT	LT	THRU	RT	LT	THRU	RT	
Winchester Pike @ Bixby Road	2022 Design Year	No-Build	AM	Delay(s)	11.3	13.0	11.0	9.8	17.7	8.0	22.1	24.9		18.0	26.1		18.0
				LOS	B	B	B	A	B	A	C	C		B	C		B
			PM	Delay(s)	15.4	35.1	13.4	19.5	23.4	13.1	27.3	42.2		24.5	24.4		28.1
				LOS	B	D	B	B	C	B	C	D		C	C		C
		Build	AM	Delay(s)	13.1	15.3	12.7	11.5	19.8	9.2	21.2	24.6		17.5	26.7		19.3
				LOS	B	B	B	B	B	B	C	C		B	C		B
			PM	Delay(s)	16.0	32.2	14.3	19.2	21.2	14.6	22.9	38.8		22.6	23.4		27.2
				LOS	B	C	B	B	C	B	C	D		C	C		C
	2032 Design Year	No-Build	AM	Delay(s)	12.3	14.0	11.8	10.6	19.5	8.1	23.6	26.3		18.9	27.5		19.5
				LOS	B	B	B	B	B	A	C	C		B	C		B
			PM	Delay(s)	17.3	50.8	14.6	23.6	26.6	13.9	28.8	44.8		25.8	24.8		34.5
				LOS	B	D	B	C	C	B	C	D		C	C		C
		Build	AM	Delay(s)	14.3	16.4	13.5	12.4	21.9	9.4	22.7	26.1		18.5	28.2		20.8
				LOS	B	B	B	B	C	A	C	C		B	C		C
			PM	Delay(s)	21.5	81.6	17.2	28.4	33.0	18.0	26.0	45.0		26.3	24.9		46.2
				LOS	C	F	B	C	C	B	C	D		C	C		D
		Build *With Optimized Signal Timings*	AM	Delay(s)													
				LOS													
			PM	Delay(s)	17.4	54.1	13.8	24.1	26.1	16.1	24.9	50.0		51.6	26.9		39.3
				LOS	B	D	B	C	C	B	C	D		D	C		D
		Build *With Optimized Signal Timings and Northbound Right Turn Lane on Bixby Road*	AM	Delay(s)													
				LOS													
			PM	Delay(s)	15.0	30.0	12.1	20.5	21.5	10.5	40.6	54.9	50.1	39.9	38.9		30.6
				LOS	B	C	B	C	C	B	D	D	D	D	D		C
Rager Road @ Bixby Road	2022 Design Year	No-Build	AM	Delay(s)				7.3			8.5						
				LOS				A			A						
			PM	Delay(s)				7.6			9.4						
				LOS				A			A						
		Build	AM	Delay(s)				7.4			10.0						
				LOS				A			B						
			PM	Delay(s)				7.9			10.5						
				LOS				A			B						
	2032 Design Year	No-Build	AM	Delay(s)				7.3			8.5						
				LOS				A			A						
			PM	Delay(s)				7.6			9.5						
				LOS				A			A						
		Build	AM	Delay(s)				7.4			9.9						
				LOS				A			A						
			PM	Delay(s)				8.0			10.7						
				LOS				A			B						

Table 5A: Capacity Analyses Summary- Intersections of Bixby Road with Winchester Pike and Rager Road

Analysis Scenario					Eastbound			Westbound			Northbound			Southbound			INT.
					LT	THRU	RT	LT	THRU	RT	LT	THRU	RT	LT	THRU	RT	
Access B @ Bixby	2022	Build	AM	Delay(s)				7.5					8.7				
				LOS				A					A				
			PM	Delay(s)				7.7					9.7				
				LOS				A					A				
	2032	Build	AM	Delay(s)				7.5					8.7				
				LOS				A					A				
			PM	Delay(s)				7.7					9.8				
				LOS				A					A				
Access C @ Bixby	2022	Build	AM	Delay(s)				7.4					8.6				
				LOS				A					A				
			PM	Delay(s)				7.8					10.0				
				LOS				A					B				
	2032	Build	AM	Delay(s)				7.4					8.7				
				LOS				A					A				
			PM	Delay(s)				7.9					10.1				
				LOS				A					B				
US-33 @ Bixby Road	2022 Design Year	No-Build	AM	Delay(s)			18.7			932.2	17.5			321.8			
				LOS			C			F	C			F			
			PM	Delay(s)			565.9			29.5	391.8			31.9			
				LOS			F			D	F			E			
		Build	AM	Delay(s)			18.7			932.2	17.5			473.0			
				LOS			C			F	C			F			
			PM	Delay(s)			565.9			29.5	391.8			40.7			
				LOS			F			D	F			E			
	2032 Design Year	No-Build	AM	Delay(s)			22.3			1860.7	22.3			818.8			
				LOS			C			F	C			F			
			PM	Delay(s)			1283.0			42.3	1085.6			91.2			
				LOS			F			E	F			F			
		Build	AM	Delay(s)			22.3			1860.7	22.3			1122.6			
				LOS			C			F	C			F			
			PM	Delay(s)			1283.0			42.3	1085.6			97.3			
				LOS			F			E	F			F			

Table 5B: Capacity Analyses Summary- Intersections of Bixby Road with Site Access Drives and US 33

Analysis Scenario					Eastbound			Westbound			Northbound			Southbound			INT.
					LT	THRU	RT	LT	THRU	RT	LT	THRU	RT	LT	THRU	RT	
Gender Road @ Winchester Pike	2022 Design Year	**No-Build**	AM	Delay(s)	37.7	66.7		57.7	27.4		534.6	16.7		32.7	181.2		193.1
				LOS	D	E		E	C		F	B		C	F		F
			PM	Delay(s)	94.7	450.1		84.3	26.4		318.8	23.6		42.0	82.0		160.9
				LOS	F	F		F	C		F	C		D	F		F
		Build	AM	Delay(s)	37.3	69.7		61.2	27.1		622.4	17.2		33.3	187.4		220.0
				LOS	D	E		E	C		F	B		C	F		F
			PM	Delay(s)	94.7	511.1		84.3	26.4		347.4	23.6		42.0	82.0		180.6
				LOS	F	F		F	C		F	C		D	F		F
		Build *With Optimized Signal Timings*	AM	Delay(s)	58.2	259.9		65.9	41.1		282.9	14.2		41.4	187.2		166.8
				LOS	E	F		E	D		F	B		D	F		F
			PM	Delay(s)	122.9	544.8		159.6	35.3		181.7	22.9		48.8	90.4		173.9
				LOS	F	F		F	D		F	C		D	F		F
		Build *Roadway No-Build Improvements*	AM	Delay(s)	48.9	43.9	26.9	39.1	34.3		57.3	11.1		32.1	49.5	45.0	40.3
				LOS	D	D	C	D	C		E	B		C	D	D	D
			PM	Delay(s)	76.0	36.0	31.2	34.0	28.8		94.3	27.1		48.7	64.0	37.3	50.1
				LOS	E	D	C	C	C		F	C		D	E	D	D
	2032 Design Year	**No-Build**	AM	Delay(s)	37.2	73.7		77.7	26.9		666.2	18.5		34.5	282.6		259.0
				LOS	D	E		E	C		F	B		C	F		F
			PM	Delay(s)	144.1	559.1		96.5	26.4		392.6	27.2		58.4	128.8		206.5
				LOS	F	F		F	C		F	C		E	F		F
		Build	AM	Delay(s)	37.0	79.8		89.9	26.8		751.9	18.8		34.8	286.7		285.2
				LOS	D	E		F	C		F	B		C	F		F
			PM	Delay(s)	144.1	621.5		96.5	26.4		421.5	27.2		58.4	128.8		226.7
				LOS	F	F		F	C		F	C		E	F		F
		Build *With Optimized Signal Timings*	AM	Delay(s)	59.6	333.9		67.3	41.3		373.4	14.8		41.2	258.1		218.7
				LOS	E	F		E	D		F	B		D	F		F
			PM	Delay(s)	180.6	657.9		141.6	34.7		255.0	26.5		55.8	136.2		220.1
				LOS	F	F		F	C		F	C		E	F		F
		Build *Roadway No-Build Improvements*	AM	Delay(s)	61.6	54.6	32.2	49.1	43.1		72.0	11.9		36.6	60.4	52.2	49.0
				LOS	E	D	C	D	D		E	B		D	E	D	D
			PM	Delay(s)	111.9	38.1	35.9	38.0	31.0		143.1	31.8		71.4	82.9	38.4	66.5
				LOS	F	D	D	D	C		F	C		E	F	D	E

Table 5C: Capacity Analyses Summary- Intersection of Gender Road with Winchester Pike

5.3 SIGHT DISTANCE REVIEW

A sight distance review was performed for the proposed access driveways along Bixby Road. Sight distance was reviewed using guidance from the ODOT Location and Design Manual, Part 1, Section 200. According to the review, the speed limit along Bixby Road is 50 mph which requires 480 feet of intersection sight distance for passenger vehicles turning right from the site driveways.

According to field review, adequate intersection sight distance is available for passenger cars at Accesses B and C.

The required intersection sight distance for trucks is required to be higher than for passenger vehicles. According to the ODOT L&D Manual, Volume 1, Section 200, intersection sight distance for trucks along a 50 mph design speed roadway is required to be approximately 772-ft. This truck sight distance is available for Access B & C when looking to the west.

A sight distance review was also performed for vehicles turning left along Bixby Road to enter the site access driveways. This review was performed using the AASHTO's geometric design guidelines. According to the review, the speed limit along Bixby Road is 50 mph which requires approximately 404-ft and 551-ft of intersection sight distance for passenger vehicles and trucks, respectively, entering the site driveway. According to the field review at Accesses B & C, adequate intersection sight distance is available for the passenger cars and trucks turning left into the site.

6.1 FINDINGS

The following findings were made during the traffic impact study process:

1. Turn lane warrant analysis at the proposed access driveways along Bixby Road indicated that no turn lanes are anticipated to be warranted in the 2022 and 2032 build scenarios.
2. An incremental turn lane warrant analysis found the northwestbound approach to Bixby along US-33 would warrant a right-turn lane as long as the proposed site resulted in a minimum of 17 additional right-turns during the AM peak hour or 4 additional right-turns during the PM peak hour.
3. Capacity analysis indicated that all the proposed access drives on Bixby Road are expected to operate acceptably in the 2022 and 2032 build scenarios.
4. Capacity analyses indicated that all the movements at the intersection of Bixby Road and Rager Road are expected to operate acceptably in the 2022 and 2032, no-build and build scenarios.
5. Capacity analysis indicated that the overall intersection of Winchester Pike and Bixby Road is expected to operate acceptably in the 2022 and 2032 no-build scenarios. With the addition of the estimated site-generated volumes, the overall intersection delay and one of the movements is expected to have an unacceptable level of service with the existing signal timings. Adjustments to traffic signal timings and the addition of a northbound right turn lane on Bixby Road were found to mitigate the increase in delays from the site-generated traffic.
6. Capacity analysis indicated that the westbound right turning movements and the southbound left turning movements at the intersection of US 33 and Bixby Road are expected to experience significant delays in the no-build and build AM peak hour scenarios. Also, the eastbound right turning movements and the northbound left turning movements are expected to experience significant delays in the no-build and build PM peak hour scenarios. This is due to the high background traffic volumes on US 33. It is anticipated that if drivers for these movements find delays to be unacceptable, they will reroute to an alternate travel path. The relatively low number of site vehicles assumed to be turning left from US 33 onto Bixby Road for this study that may reroute to other intersections are not expected to impact operations at other area intersections.
7. Capacity analysis indicated the intersection of Gender Road and Winchester Pike is expected to experience very high delays in both the no-build and build scenarios in both the 2022 and 2032 design years. Because the site generated trip volumes are a low percentage of the 2032 build volumes (2.1% during the AM peak and 1.8% during the PM peak) no improvements are recommended to mitigate the high delays at this intersection as a result of this proposed development. No-build improvements were investigated and included in this report separately to provide guidance on potential improvement options.
8. According to field review, adequate intersection sight distance is available for passenger cars and trucks looking west at Accesses B and C.

6.2 RECOMMENDATIONS

The following improvements are recommended as a result of this traffic impact study:

1. Construct the proposed access driveways according to the preliminary site plan. Each of the site driveways should have one entering lane and one exiting lane with signs and channelizing islands within the limits of the driveways to prohibit exiting left turns.
2. Construct a 345-ft northwestbound right-turn lane (including a 50-ft diverging taper) along US-33 at the intersection of Bixby Road.
3. Construct a 350-foot northbound right-turn lane (including 50-ft diverging taper) on Bixby Road at Winchester Pike.
4. Monitor the intersection of Winchester Pike and Bixby Road, making signal timings as needed to address unacceptable delays that are expected in the future design year.

Preliminary Site Plan

BIXBY RD (CANAL WINCHESTER, OH)

SCHEMATIC SITE PLAN A3

2021.05.28
SCALE 1:100

LEGEND:
1. 20' BUILDING SETBACK
2. 30' BUILDING SETBACK
3. 50' BUILDING SETBACK
4. 15' LANDSCAPE BUFFER
5. 2007 PROPOSED INTERCHANGE PLAN (ODOT)

Access A
NOT RECOMMENDED
FOR CONSTRUCTION

Access B

Access C

BIXBY RD

RIGHT-OF-WAY DEDICATION

ZONING: RURAL

DETENTION

LOT 1
BUILDING 1
±565,000 S.F.
520' x 1,092'

LOT 2
BUILDING 2
±575,000 S.F.
570' x 1008'

TRACT A
DETENTION

VAN PARKING

US ROUTE 33 - WESTBOUND

US ROUTE 33 - EASTBOUND

RAGER ROAD
CHURCH OF CHRIST

RAGER RD

ZONING: LM

SITE DEVELOPMENT DATA TABLE				
SITE AREA (GROSS): 72.04 ACRES				
SITE AREA (NET): 65.22 ACRES				
DEDICATED RIGHT-OF-WAY: 6.82 ACRES				
TOTAL BUILDING AREA: 1,140,000 SF				
TOTAL BUILDING COVERAGE: 40.1%				
***CANAL WINCHESTER, OH* REQUIREMENTS**				
CURRENT ZONING: RURAL				
PROPOSED ZONING: LIMITED MANUFACTURING				
PROPOSED USES: WAREHOUSE				
SETBACKS:		**BUILDING 1**	**BUILDING 2**	**TRACT A**
BUILDING SETBACKS:	**REQUIRED**	**PROVIDED**	**PROVIDED**	**PROVIDED**
FRONT	50'	50'	50'	50'
SIDE	20'	20'	20'	20'
REAR	20'	20'	20'	20'
BUFFERS:				
	15'	15'	15'	15'
DATA:				
BUILDING				
BUILDING SQUARE FOOTAGE (SF):		565,000 SF	575,000 SF	
LOT AREA (MIN.)	NO MINIMUM	30.5 Ac.	30.2 Ac.	4.5 Ac.
BUILDING HEIGHT:	60'	50'	50'	
PARKING:	**TOTAL**			
LIGHT/HEAVY MANUFACTURING REQUIRED (1):	1,140	565	575	
PROPOSED PARKING RATIO (2):	651	323	329	
PROVIDED:	**822 STALLS**	**323 STALLS**	**499 STALLS**	
TRAILER STALLS:	**286 STALLS**	141 STALLS	145 STALLS	
VAN STALLS:	**N/A**	10 STALLS	N/A	
PARKING DIMENSIONS:	**9'x18'**	**9'x20'**	**9'x20'**	
DRIVE AISLE WIDTH:	22'	25'	25'	
(1) LIGHT/HEAVY MANUFACTURING: 1 SPACE PER 1,000 SF OF GROSS FLOOR AREA (GFA)				
(2) PROPOSED PARKING RATIO: 1 SPACE PER 1,750' GROSS FLOOR AREA (GFA) ** **VARIANCE REQUESTED**				

NOTES:
1. BOUNDARY: PRELIMINARY ALTA SURVEY BY V3 COMPANIES
2. CONTOURS: USGS
3. BUILDING FOOTPRINT: NONE

LEGEND

100	EXISTING INDEX CONTOURS
100	EXISTING INTERMEDIATE CONTOURS
	EXISTING POWER\ELECTRIC LINE
	EXISTING SANITARY SEWER
	EXISTING WATER LINE
	DEDICATED ROW
	SFHA ZONE AE
	WETLANDS

C:\STEPPOINT DROPBOX\01 PROJECTS_INDUSTRIAL_3485 BIXBY RD (CANAL WINCHESTER, OH)\05 MASTER PLANS\PLANS\SCHEMATIC SITE PLAN A3.DWG ALEX EDWARDS

NorthPoint DEVELOPMENT

Traffic Count Data

The Kleinger's Group
6219 Centre Park Drive

West Chester, Ohio, United States 45069
513-779-7851 dave.meyer@kleingers.com

Count Name: Bixby Road@Winchester Pike
Site Code:
Start Date: 06/17/2021

Turning Movement Data

Start Time	Winchester Pike Eastbound					Winchester Pike Westbound					Bixby Road Northbound					Brice Road Southbound					
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
6:00 AM	1	9	1	0	11	2	17	5	0	24	0	3	1	0	4	7	3	9	0	19	58
6:15 AM	1	7	0	0	8	0	34	7	0	41	0	0	0	0	0	8	11	10	0	29	78
6:30 AM	1	8	1	0	10	5	35	6	0	46	0	1	1	0	2	12	12	18	0	42	100
6:45 AM	3	15	1	0	19	0	29	9	0	38	0	2	1	0	3	16	9	13	0	38	98
Hourly Total	6	39	3	0	48	7	115	27	0	149	0	6	3	0	9	43	35	50	0	128	334
7:00 AM	2	22	0	0	24	3	27	10	0	40	0	3	3	0	6	26	9	13	0	48	118
7:15 AM	3	16	1	0	20	3	36	7	0	46	1	3	4	0	8	28	17	13	0	58	132
7:30 AM	2	23	3	0	28	1	36	14	0	51	0	5	1	0	6	26	18	17	0	61	146
7:45 AM	5	23	0	0	28	1	33	17	0	51	0	6	3	0	9	28	15	14	0	57	145
Hourly Total	12	84	4	0	100	8	132	48	0	188	1	17	11	0	29	108	59	57	0	224	541
8:00 AM	4	23	0	0	27	2	26	24	0	52	0	8	7	0	15	21	14	12	0	47	141
8:15 AM	5	26	0	0	31	2	36	10	0	48	1	3	3	0	7	23	19	9	0	51	137
8:30 AM	3	29	1	0	33	3	33	14	0	50	1	11	2	0	14	29	14	12	0	55	152
8:45 AM	8	37	0	0	45	0	48	21	0	69	0	3	5	0	8	29	17	16	0	62	184
Hourly Total	20	115	1	0	136	7	143	69	0	219	2	25	17	0	44	102	64	49	0	215	614
9:00 AM	5	31	2	0	38	2	35	23	0	60	1	3	3	0	7	21	5	7	0	33	138
9:15 AM	2	42	3	0	47	4	31	8	0	43	0	5	6	0	11	26	9	10	0	45	146
9:30 AM	6	30	2	0	38	2	28	15	0	45	3	4	4	0	11	31	15	11	0	57	151
9:45 AM	7	37	1	0	45	2	31	21	0	54	1	3	4	0	8	13	8	4	0	25	132
Hourly Total	20	140	8	0	168	10	125	67	0	202	5	15	17	0	37	91	37	32	0	160	567
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	15	50	1	0	66	2	38	32	0	72	0	16	11	0	27	35	11	4	0	50	215
3:15 PM	8	69	0	0	77	2	36	33	0	71	0	21	12	0	33	32	8	7	0	47	228
3:30 PM	14	76	2	0	92	0	49	33	0	82	0	12	12	0	24	31	2	9	0	42	240
3:45 PM	11	97	0	0	108	3	49	25	0	77	0	11	12	0	23	41	7	10	0	58	266
Hourly Total	48	292	3	0	343	7	172	123	0	302	0	60	47	0	107	139	28	30	0	197	949
4:00 PM	14	85	1	0	100	1	39	29	0	69	0	14	16	0	30	23	11	11	0	45	244
4:15 PM	17	91	1	0	109	2	53	44	0	99	1	9	11	0	21	47	11	7	0	65	294
4:30 PM	16	109	1	0	126	3	52	33	0	88	0	15	15	0	30	37	13	6	0	56	300
4:45 PM	21	100	1	0	122	2	46	41	0	89	0	11	10	0	21	45	10	8	0	63	295
Hourly Total	68	385	4	0	457	8	190	147	0	345	1	49	52	0	102	152	45	32	0	229	1133
5:00 PM	14	96	3	0	113	5	52	43	0	100	3	14	13	0	30	41	4	8	0	53	296
5:15 PM	20	115	1	0	136	1	35	45	0	81	1	12	13	0	26	37	8	8	0	53	296
5:30 PM	23	123	0	0	146	2	50	48	0	100	0	13	7	0	20	62	10	6	0	78	344
5:45 PM	16	72	0	0	88	1	48	38	0	87	0	25	4	0	29	45	19	11	0	75	279
Hourly Total	73	406	4	0	483	9	185	174	0	368	4	64	37	0	105	185	41	33	0	259	1215
6:00 PM	16	86	0	0	102	2	56	46	0	104	0	14	9	0	23	40	17	2	0	59	288
6:15 PM	18	58	0	0	76	3	34	36	0	73	0	20	13	0	33	30	16	10	0	56	238
6:30 PM	10	68	0	0	78	4	45	48	0	97	0	10	8	0	18	37	21	4	0	62	255

6:45 PM	11	46	0	0	57	2	48	40	0	90	0	12	7	0	19	28	12	8	0	48	214
Hourly Total	55	258	0	0	313	11	183	170	0	364	0	56	37	0	93	135	66	24	0	225	995
Grand Total	302	1719	27	0	2048	67	1245	825	0	2137	13	292	221	0	526	955	375	307	0	1637	6348
Approach %	14.7	83.9	1.3	0.0	-	3.1	58.3	38.6	0.0	-	2.5	55.5	42.0	0.0	-	58.3	22.9	18.8	0.0	-	-
Total %	4.8	27.1	0.4	0.0	32.3	1.1	19.6	13.0	0.0	33.7	0.2	4.6	3.5	0.0	8.3	15.0	5.9	4.8	0.0	25.8	-
Lights	300	1711	24	0	2035	64	1227	814	0	2105	11	290	218	0	519	945	368	302	0	1615	6274
% Lights	99.3	99.5	88.9	-	99.4	95.5	98.6	98.7	-	98.5	84.6	99.3	98.6	-	98.7	99.0	98.1	98.4	-	98.7	98.8
Other Vehicles	2	8	3	0	13	3	18	11	0	32	2	2	3	0	7	10	7	5	0	22	74
% Other Vehicles	0.7	0.5	11.1	-	0.6	4.5	1.4	1.3	-	1.5	15.4	0.7	1.4	-	1.3	1.0	1.9	1.6	-	1.3	1.2

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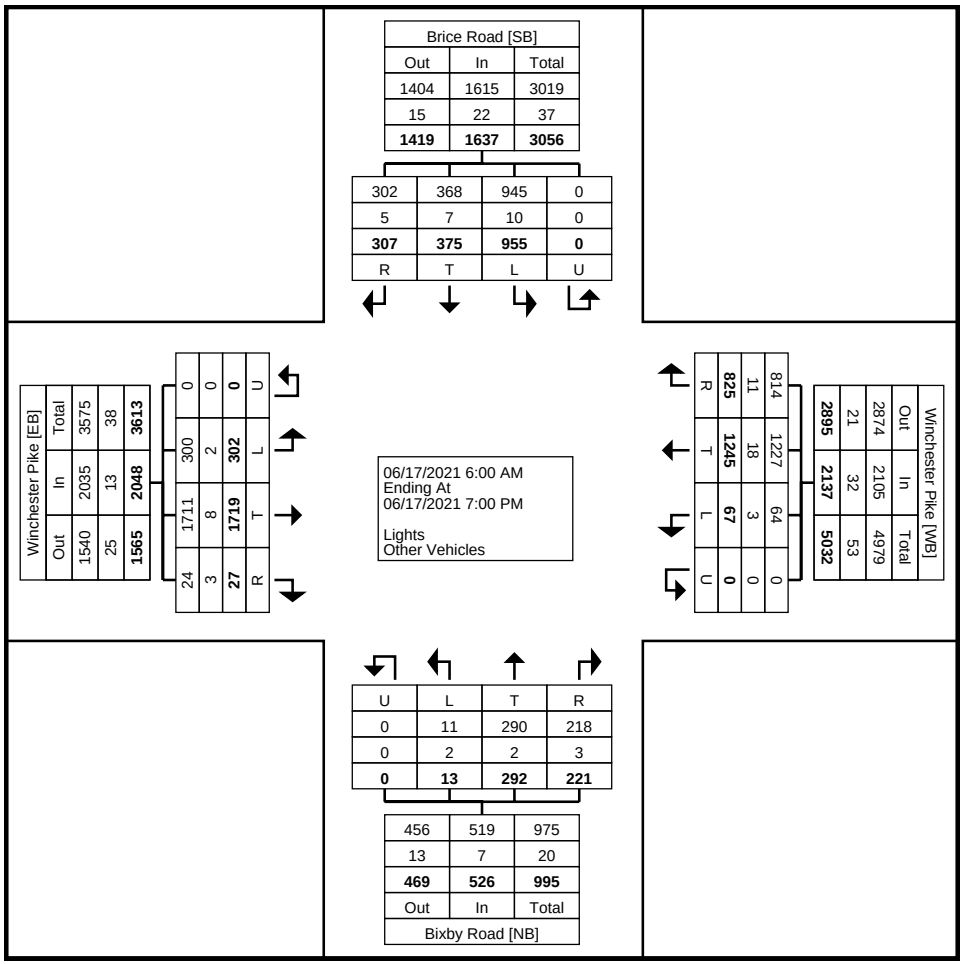
513-779-7851 dave.meyer@kleingers.com

Count Name: Bixby Road@Winchester Pike
Site Code:
Start Date: 06/17/2021



Turning Movement Data Plot

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513-779-7851 dave.meyer@kleingers.com

Count Name: Bixby Road@Winchester Pike
Site Code:
Start Date: 06/17/2021

Turning Movement Peak Hour Data (7:00 AM)

Start Time	Winchester Pike Eastbound					Winchester Pike Westbound					Bixby Road Northbound					Brice Road Southbound					
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
7:00 AM	2	22	0	0	24	3	27	10	0	40	0	3	3	0	6	26	9	13	0	48	118
7:15 AM	3	16	1	0	20	3	36	7	0	46	1	3	4	0	8	28	17	13	0	58	132
7:30 AM	2	23	3	0	28	1	36	14	0	51	0	5	1	0	6	26	18	17	0	61	146
7:45 AM	5	23	0	0	28	1	33	17	0	51	0	6	3	0	9	28	15	14	0	57	145
Total	12	84	4	0	100	8	132	48	0	188	1	17	11	0	29	108	59	57	0	224	541
Approach %	12.0	84.0	4.0	0.0	-	4.3	70.2	25.5	0.0	-	3.4	58.6	37.9	0.0	-	48.2	26.3	25.4	0.0	-	-
Total %	2.2	15.5	0.7	0.0	18.5	1.5	24.4	8.9	0.0	34.8	0.2	3.1	2.0	0.0	5.4	20.0	10.9	10.5	0.0	41.4	-
PHF	0.600	0.913	0.333	0.000	0.893	0.667	0.917	0.706	0.000	0.922	0.250	0.708	0.688	0.000	0.806	0.964	0.819	0.838	0.000	0.918	0.926
Lights	12	83	1	0	96	7	129	47	0	183	1	17	10	0	28	106	59	57	0	222	529
% Lights	100.0	98.8	25.0	-	96.0	87.5	97.7	97.9	-	97.3	100.0	100.0	90.9	-	96.6	98.1	100.0	100.0	-	99.1	97.8
Other Vehicles	0	1	3	0	4	1	3	1	0	5	0	0	1	0	1	2	0	0	0	2	12
% Other Vehicles	0.0	1.2	75.0	-	4.0	12.5	2.3	2.1	-	2.7	0.0	0.0	9.1	-	3.4	1.9	0.0	0.0	-	0.9	2.2

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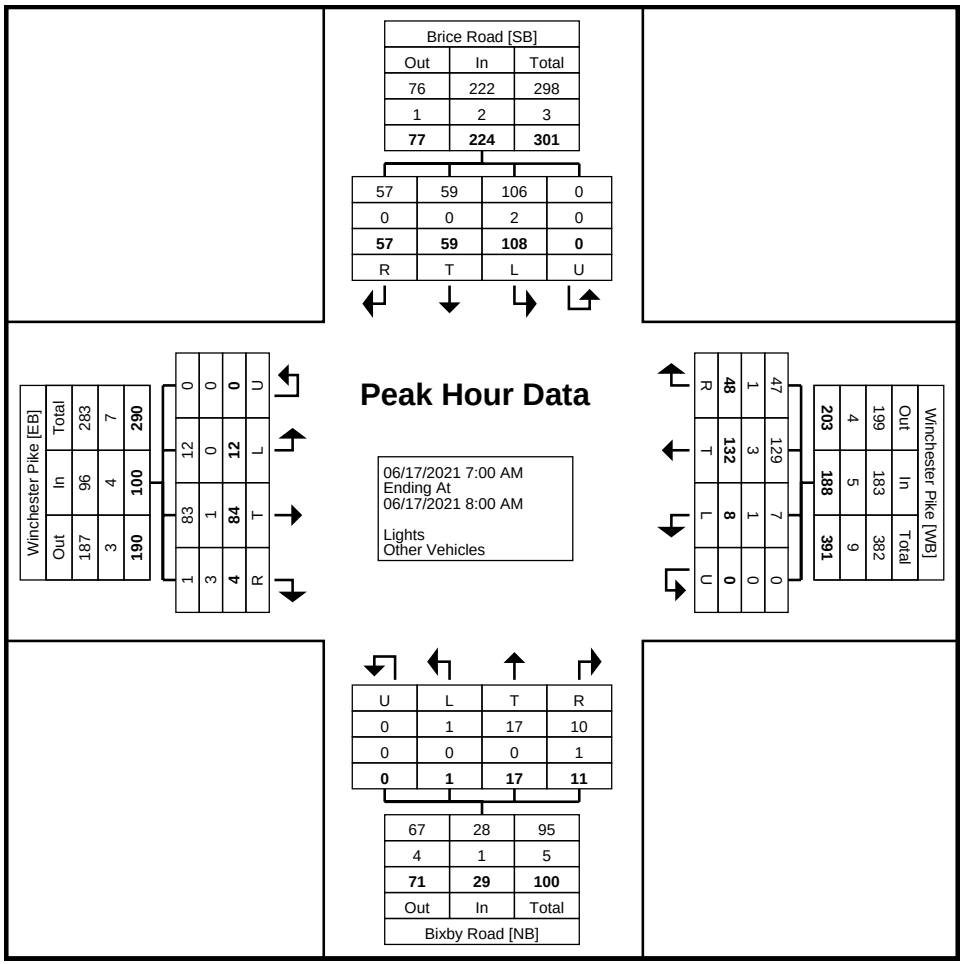

Turning Movement Peak Hour Data Plot (7:00 AM)

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Count Name: Bixby Road@Winchester Pike
Site Code:
Start Date: 06/17/2021

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Winchester Pike Eastbound					Winchester Pike Westbound					Bixby Road Northbound					Brice Road Southbound					
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
4:45 PM	21	100	1	0	122	2	46	41	0	89	0	11	10	0	21	45	10	8	0	63	295
5:00 PM	14	96	3	0	113	5	52	43	0	100	3	14	13	0	30	41	4	8	0	53	296
5:15 PM	20	115	1	0	136	1	35	45	0	81	1	12	13	0	26	37	8	8	0	53	296
5:30 PM	23	123	0	0	146	2	50	48	0	100	0	13	7	0	20	62	10	6	0	78	344
Total	78	434	5	0	517	10	183	177	0	370	4	50	43	0	97	185	32	30	0	247	1231
Approach %	15.1	83.9	1.0	0.0	-	2.7	49.5	47.8	0.0	-	4.1	51.5	44.3	0.0	-	74.9	13.0	12.1	0.0	-	-
Total %	6.3	35.3	0.4	0.0	42.0	0.8	14.9	14.4	0.0	30.1	0.3	4.1	3.5	0.0	7.9	15.0	2.6	2.4	0.0	20.1	-
PHF	0.848	0.882	0.417	0.000	0.885	0.500	0.880	0.922	0.000	0.925	0.333	0.893	0.827	0.000	0.808	0.746	0.800	0.938	0.000	0.792	0.895
Lights	78	432	5	0	515	10	179	176	0	365	4	50	42	0	96	183	30	29	0	242	1218
% Lights	100.0	99.5	100.0	-	99.6	100.0	97.8	99.4	-	98.6	100.0	100.0	97.7	-	99.0	98.9	93.8	96.7	-	98.0	98.9
Other Vehicles	0	2	0	0	2	0	4	1	0	5	0	0	1	0	1	2	2	1	0	5	13
% Other Vehicles	0.0	0.5	0.0	-	0.4	0.0	2.2	0.6	-	1.4	0.0	0.0	2.3	-	1.0	1.1	6.3	3.3	-	2.0	1.1

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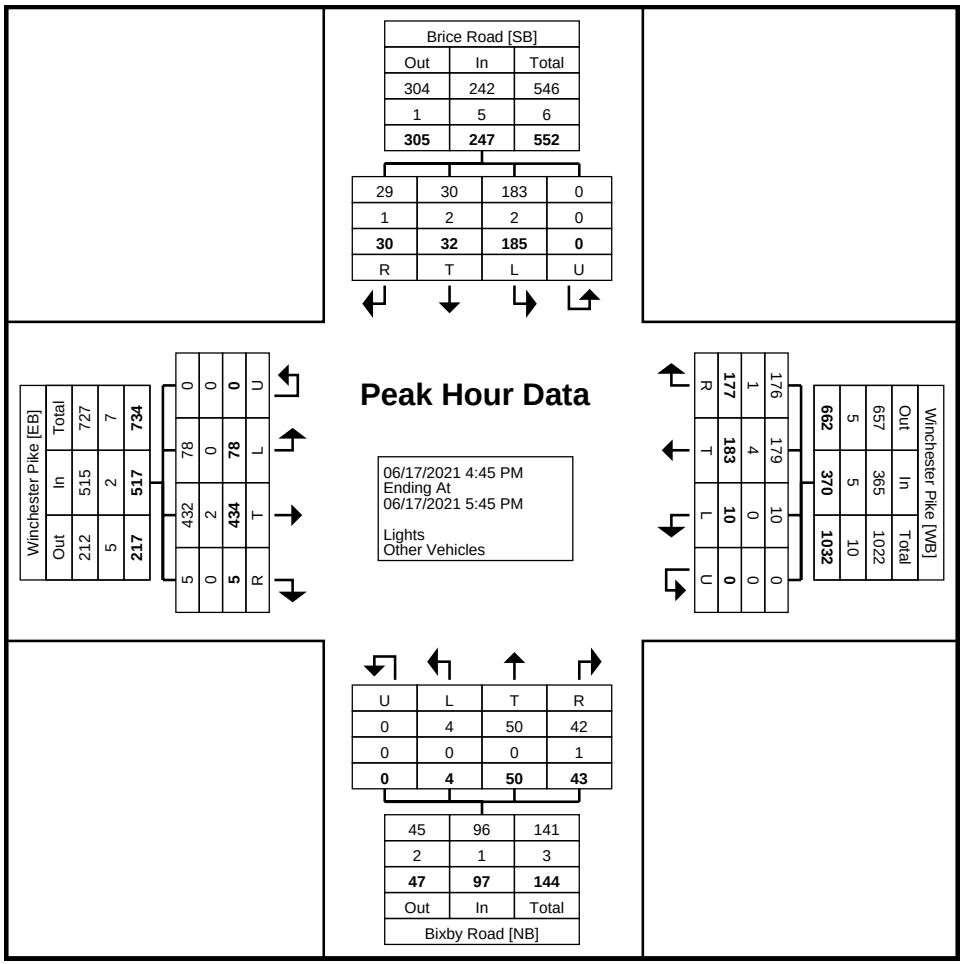

Turning Movement Peak Hour Data Plot (4:45 PM)

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513-779-7851 dave.meyer@kleingers.com

Count Name: Bixby Road@Rager Road
Site Code:
Start Date: 06/17/2021

Turning Movement Data

Start Time	Bixby Road Eastbound				Bixby Road Westbound				Rager Road Northbound				
	Thru	Right	U-Turn	App. Total	Left	Thru	U-Turn	App. Total	Left	Right	U-Turn	App. Total	Int. Total
6:00 AM	5	0	0	5	1	3	0	4	0	0	0	0	9
6:15 AM	1	0	0	1	0	12	0	12	0	0	0	0	13
6:30 AM	1	0	0	1	2	14	0	16	0	0	0	0	17
6:45 AM	6	0	0	6	2	8	0	10	0	1	0	1	17
Hourly Total	13	0	0	13	5	37	0	42	0	1	0	1	56
7:00 AM	6	0	0	6	1	12	0	13	0	1	0	1	20
7:15 AM	8	0	0	8	2	16	0	18	0	0	0	0	26
7:30 AM	3	0	0	3	2	16	0	18	0	2	0	2	23
7:45 AM	8	0	0	8	1	13	0	14	0	0	0	0	22
Hourly Total	25	0	0	25	6	57	0	63	0	3	0	3	91
8:00 AM	12	2	0	14	1	14	0	15	0	3	0	3	32
8:15 AM	7	0	0	7	0	19	0	19	0	0	0	0	26
8:30 AM	13	1	0	14	0	19	0	19	0	1	0	1	34
8:45 AM	6	0	0	6	1	17	0	18	0	3	0	3	27
Hourly Total	38	3	0	41	2	69	0	71	0	7	0	7	119
9:00 AM	6	0	0	6	0	14	0	14	0	1	0	1	21
9:15 AM	12	0	0	12	2	14	0	16	0	2	0	2	30
9:30 AM	6	0	0	6	3	16	0	19	0	1	0	1	26
9:45 AM	8	0	0	8	1	9	0	10	0	2	0	2	20
Hourly Total	32	0	0	32	6	53	0	59	0	6	0	6	97
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	25	0	0	25	2	11	0	13	0	3	0	3	41
3:15 PM	31	0	0	31	1	9	0	10	0	3	0	3	44
3:30 PM	23	2	0	25	1	6	0	7	0	2	0	2	34
3:45 PM	17	0	0	17	1	9	0	10	0	2	0	2	29
Hourly Total	96	2	0	98	5	35	0	40	0	10	0	10	148
4:00 PM	25	0	0	25	1	12	0	13	1	5	0	6	44
4:15 PM	24	1	0	25	0	16	0	16	0	3	0	3	44
4:30 PM	18	0	0	18	1	14	0	15	0	3	0	3	36
4:45 PM	21	0	0	21	1	13	0	14	1	2	0	3	38
Hourly Total	88	1	0	89	3	55	0	58	2	13	0	15	162
5:00 PM	23	0	0	23	4	8	0	12	0	3	0	3	38
5:15 PM	25	0	0	25	2	7	0	9	0	2	0	2	36
5:30 PM	17	1	0	18	2	10	0	12	0	2	0	2	32
5:45 PM	29	1	0	30	6	14	0	20	0	0	0	0	50
Hourly Total	94	2	0	96	14	39	0	53	0	7	0	7	156
6:00 PM	18	1	0	19	3	18	0	21	0	2	0	2	42
6:15 PM	31	0	0	31	1	16	0	17	0	1	0	1	49
6:30 PM	19	0	0	19	2	22	0	24	0	0	0	0	43

6:45 PM	16	0	0	16	0	14	0	14	0	3	0	3	33
Hourly Total	84	1	0	85	6	70	0	76	0	6	0	6	167
Grand Total	470	9	0	479	47	415	0	462	2	53	0	55	996
Approach %	98.1	1.9	0.0	-	10.2	89.8	0.0	-	3.6	96.4	0.0	-	-
Total %	47.2	0.9	0.0	48.1	4.7	41.7	0.0	46.4	0.2	5.3	0.0	5.5	-
Lights	466	9	0	475	46	409	0	455	2	52	0	54	984
% Lights	99.1	100.0	-	99.2	97.9	98.6	-	98.5	100.0	98.1	-	98.2	98.8
Other Vehicles	4	0	0	4	1	6	0	7	0	1	0	1	12
% Other Vehicles	0.9	0.0	-	0.8	2.1	1.4	-	1.5	0.0	1.9	-	1.8	1.2

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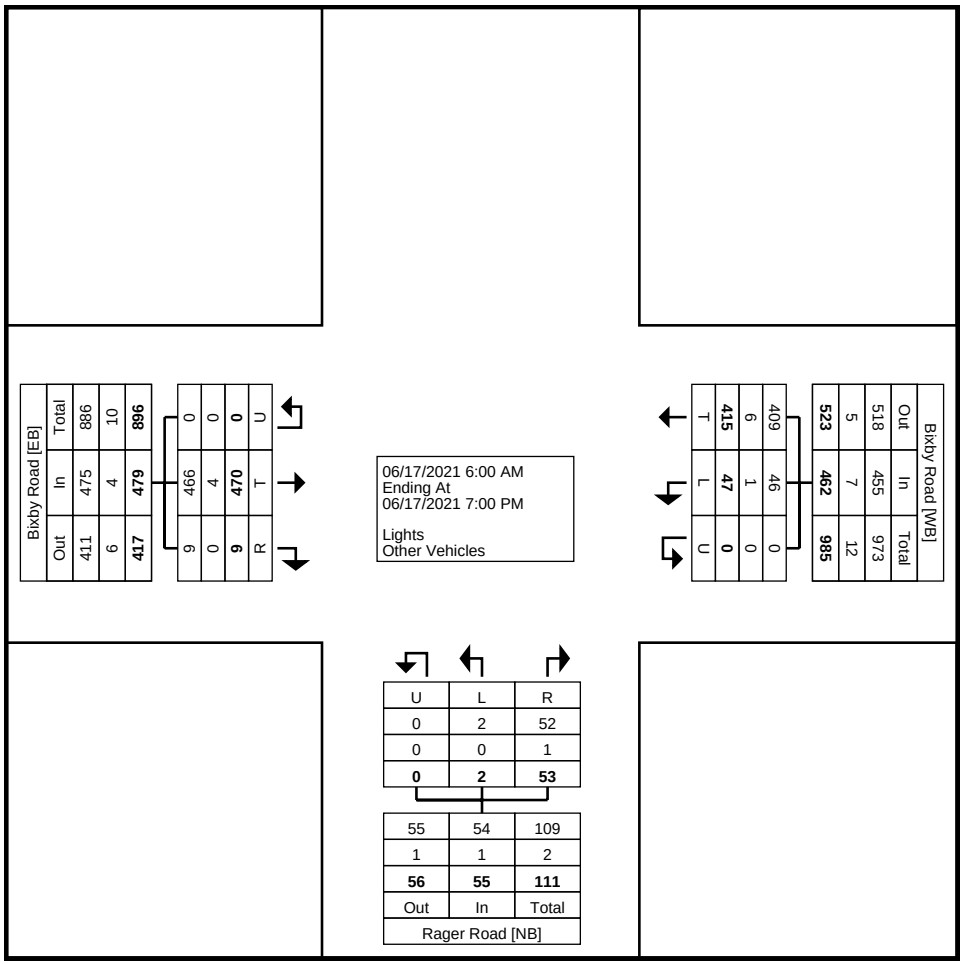

Turning Movement Data Plot

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Count Name: Bixby Road@Rager Road
Site Code:
Start Date: 06/17/2021

Turning Movement Peak Hour Data (7:15 AM)

Start Time	Bixby Road Eastbound				Bixby Road Westbound				Rager Road Northbound				
	Thru	Right	U-Turn	App. Total	Left	Thru	U-Turn	App. Total	Left	Right	U-Turn	App. Total	Int. Total
7:15 AM	8	0	0	8	2	16	0	18	0	0	0	0	26
7:30 AM	3	0	0	3	2	16	0	18	0	2	0	2	23
7:45 AM	8	0	0	8	1	13	0	14	0	0	0	0	22
8:00 AM	12	2	0	14	1	14	0	15	0	3	0	3	32
Total	31	2	0	33	6	59	0	65	0	5	0	5	103
Approach %	93.9	6.1	0.0	-	9.2	90.8	0.0	-	0.0	100.0	0.0	-	-
Total %	30.1	1.9	0.0	32.0	5.8	57.3	0.0	63.1	0.0	4.9	0.0	4.9	-
PHF	0.646	0.250	0.000	0.589	0.750	0.922	0.000	0.903	0.000	0.417	0.000	0.417	0.805
Lights	30	2	0	32	6	59	0	65	0	4	0	4	101
% Lights	96.8	100.0	-	97.0	100.0	100.0	-	100.0	-	80.0	-	80.0	98.1
Other Vehicles	1	0	0	1	0	0	0	0	0	1	0	1	2
% Other Vehicles	3.2	0.0	-	3.0	0.0	0.0	-	0.0	-	20.0	-	20.0	1.9

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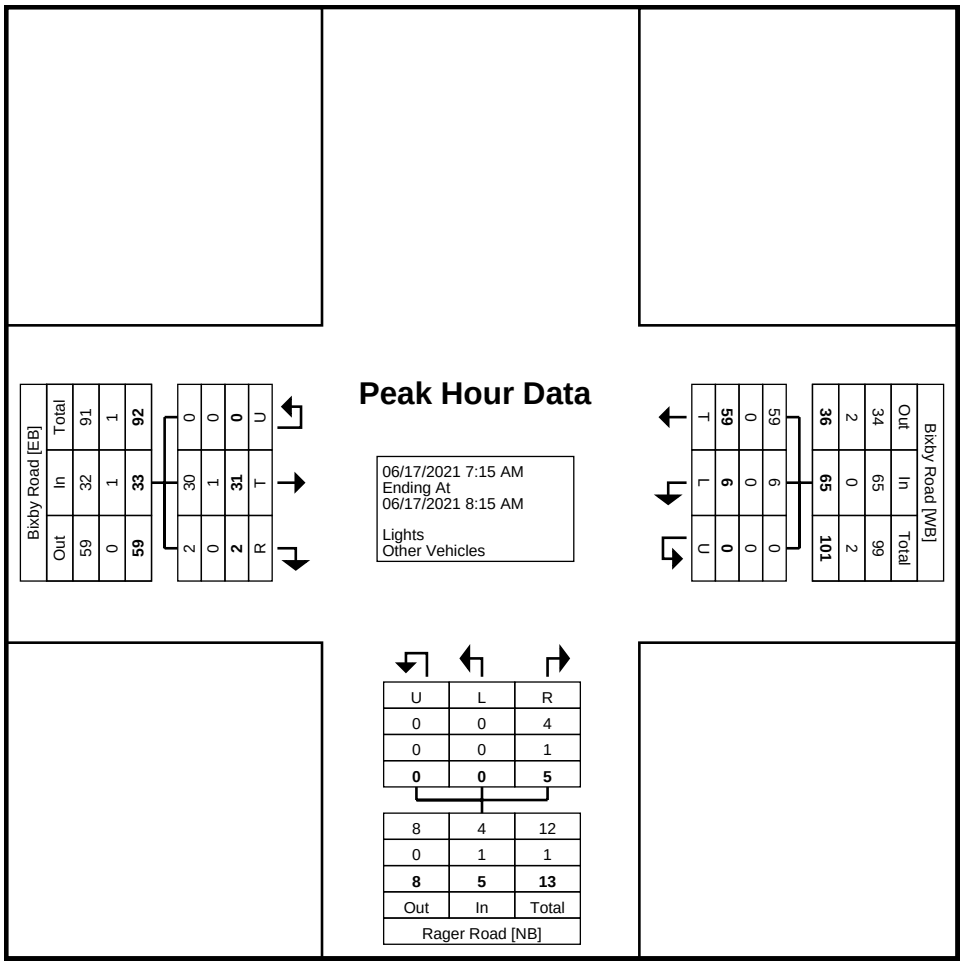

Turning Movement Peak Hour Data Plot (7:15 AM)

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Start Date: 06/17/2021

Turning Movement Peak Hour Data (5:00 PM)

Start Time	Bixby Road Eastbound				Bixby Road Westbound				Rager Road Northbound				
	Thru	Right	U-Turn	App. Total	Left	Thru	U-Turn	App. Total	Left	Right	U-Turn	App. Total	Int. Total
5:00 PM	23	0	0	23	4	8	0	12	0	3	0	3	38
5:15 PM	25	0	0	25	2	7	0	9	0	2	0	2	36
5:30 PM	17	1	0	18	2	10	0	12	0	2	0	2	32
5:45 PM	29	1	0	30	6	14	0	20	0	0	0	0	50
Total	94	2	0	96	14	39	0	53	0	7	0	7	156
Approach %	97.9	2.1	0.0	-	26.4	73.6	0.0	-	0.0	100.0	0.0	-	-
Total %	60.3	1.3	0.0	61.5	9.0	25.0	0.0	34.0	0.0	4.5	0.0	4.5	-
PHF	0.810	0.500	0.000	0.800	0.583	0.696	0.000	0.663	0.000	0.583	0.000	0.583	0.780
Lights	94	2	0	96	14	37	0	51	0	7	0	7	154
% Lights	100.0	100.0	-	100.0	100.0	94.9	-	96.2	-	100.0	-	100.0	98.7
Other Vehicles	0	0	0	0	0	2	0	2	0	0	0	0	2
% Other Vehicles	0.0	0.0	-	0.0	0.0	5.1	-	3.8	-	0.0	-	0.0	1.3

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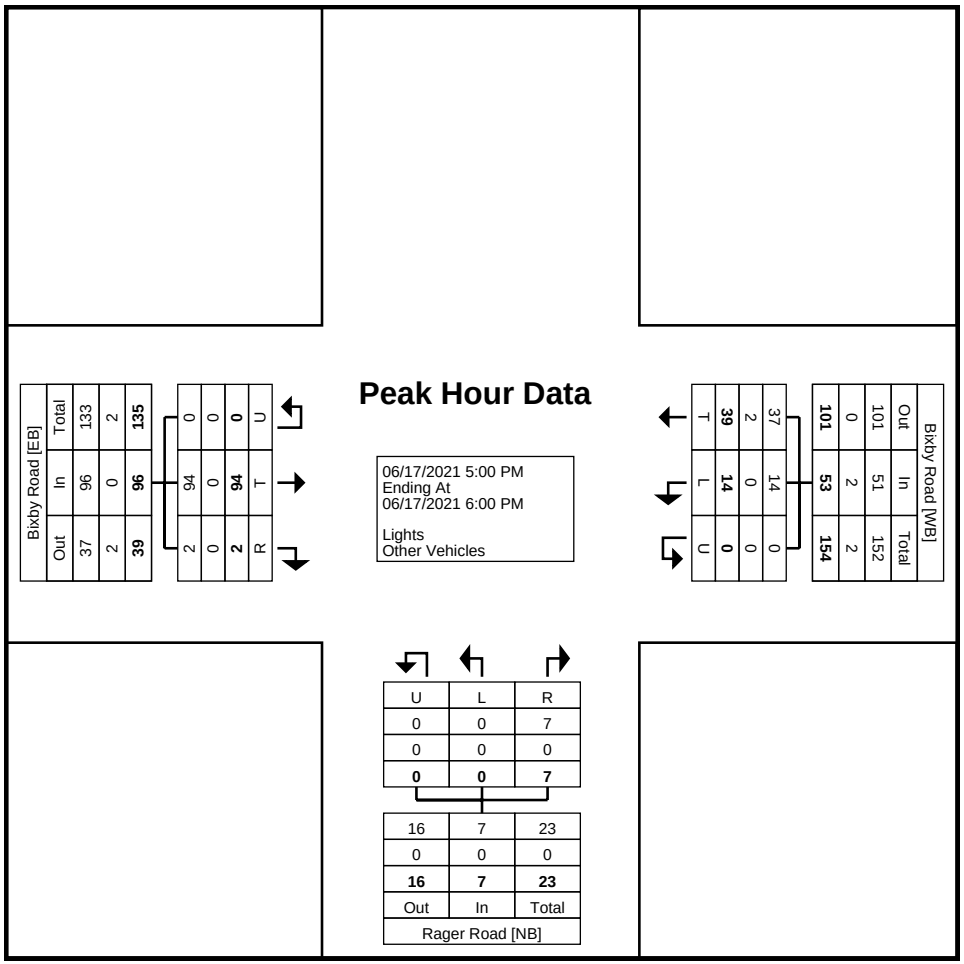


Turning Movement Peak Hour Data Plot (5:00 PM)

Intersection of US 33 and Bixby Road

Date of Counts- 06-17-2021

	Bixby Road Eastbound				Bixby Road Westbound				US 33 Northbound				US 33 Southbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
7:15 AM	0	0	5	0	0	0	7	0	19		0	0	7		3	0
7:30 AM	0	0	9	0	0	0	15	0	16		0	0	4		2	0
7:45 AM	0	0	7	0	0	0	13	0	11		1	0	8		3	0
8:00 AM	0	0	9	0	0	0	16	0	11		1	0	9		5	0
5:00 PM	0	0	14	0	0	0	6	0	7		0	0	21		3	0
5:15 PM	0	0	12	0	0	0	6	0	7		0	0	19		8	0
5:30 PM	0	0	11	0	0	0	8	0	6		6	0	23		7	0
5:45 PM	0	0	18	0	0	0	13	0	8		3	0	21		10	0
AM PEAK(7:15 -8:15)	0	0	30	0	0	0	51	0	57		2	0	28		13	0
PM PEAK(5:00 -6:00)	0	0	55	0	0	0	33	0	28		9	0	84		28	0

INTER-OFFICE COMMUNICATION

TO: **Drew Hurst, District 6**

FROM: Bryan Raderstorf, Transportation Engineer, Division of Statewide Planning & Research, Modeling & Forecasting Section

SUBJECT: **FRA/FAI 33, PID 111460**

DATE: November 19, 2020

In reply to a request dated August 28, 2020, revised plates submitted have been reviewed and are reasonable for use. Attached are plates showing 2019 Existing/2025/2045 No Build & Build alternatives 1 and 2 ADT, PM DHV, and AM DHV as well as existing truck factors. K and D factors can be calculated from the plates.

If you have any questions, please contact me at (614) 752-5736.

BURGESS & NIPLE Memorandum

5085 Reed Road | Columbus, Ohio 43220 | 614.459.2050

To: Ohio Department of Transportation **November 6, 2020**

From: Randy Kill, PE, PTOE
Burgess & Niple, Inc.

Subject: Procedure for Developing Certified Traffic for FRA/FAI-US-33 Feasibility Study (PID 111460).

This memo will outline the procedure and data used to develop the traffic volumes that are being submitted for certification for the FRA/FAI-US-33 Feasibility Study (PID 111460) project. Build Alternative 1 for this project includes a proposed hard shoulder running (HSR) lane that will operate in the northbound direction during the AM peak and in the southbound direction during the PM peak. Build Alternative 2 includes a permanent lane addition in each direction of the US-33 corridor. Separate No-Build, Build Alternative 1, and Build Alternative 2 volumes are being submitted for this project. The Opening Year for the project will be 2025 and the Design Year will be 2045.

Certified Traffic Development

Traffic Counts
The certified traffic study area consists of the mainline and ramps for the US 33 corridor between the SR 104/James Road system interchange and Pickerington Road, the mainline and ramps for the I-270 corridor from Alum Creek Road interchange to the I-70/I270 interchange, five intersections along Hamilton Road, four intersections along Gender Road, and two ramp terminal intersections at the Dilley Road interchange.

Existing intersection counts were provided by ODOT and were conducted in 2019. The Diley Road & EB/WB US-33 ramp terminal intersections were 2016 counts obtained from the ODOT TMMS site and grown to 2019 using a linear growth rate of 2%.

Existing ramp counts were obtained from the ODOT TMMS website. Most of the ramps were counted in March, April, and July 2019. Two of the ramps were counted in 2018 and grown to 2019 using a linear growth rate of 2%.

Mainline traffic volumes were obtained from four ATR locations in the corridor. ATR locations used are:

- STA 502 located on US 33 between the I-270 interchange and the SR 104 interchange
- STA 539 located on US 33 east of the Diley Road interchange
- STA N97 located on I-270 south of the Alum Creek interchange
- STA N103 located on I-270 north of the I-70 interchange

The AM peak hour for the corridor was identified as 7:00-8:00 am and the PM peak hour was determined to be 3:30-4:30 pm. The ***Corridor Volumes*** spreadsheet included in this submission shows the calculations for the mainline volumes using the ramp and mainline counts. Copies of the traffic counts used are included in the ***Counts*** folder with this submission.

Corridor volumes were balanced and smoothed along the corridors where appropriate. On the US-33 corridor, there are three existing at grade intersections; Bixby Road, Rager Road, and Bowen Road. These intersections were not counted,

it was assumed that the volume difference between TMMS counts at the adjacent interchanges was due to vehicles using these roadways. The ***Corridor Volumes*** spreadsheet shows the volume balancing at the intersections and at the ramps.

Existing traffic counts for the ADT, AM Peak and PM Peak volumes are shown on Plate 1 through Plate 8. Existing truck percentages are shown on Plate 44 through 48.

NCHRP Adjustments
The procedures outlined in the ODOT Traffic Forecasting Manual were used to develop future traffic assignments. Travel Demand Model (TDM) output for the 2018 base year and 2045 horizon year were provided by MORPC.

The No-Build includes a new interchange on US-33 at Bixby Road and a new interchange on US-33 at Pickerington Road. No-Build NCHRP spreadsheets were developed for each study intersection and interchanges. The remaining ramp volumes in the study area were determined by applying the NCHRP 765 methodologies to the individual ramp links. The spreadsheets include the ADT, AM peak and PM peak traffic counts as well as the MORPC 2018 and 2045 TDM model assignments. The NCHRP spreadsheets are included in the ***NCHRP Spreadsheets*** folder.

A Design Hour Vehicle Factor was determined using ATR locations 502, 539, N97, and N103. From the K and D Factors Report, the 30th highest hour k-factor was divided by the average day k-factor at each location. The resulting values were then averaged.

STA 502
30th highest k = 8.88%, typical day k = 8.08%, 8.88/8.08 = 1.01

STA 539
30th highest k = 9.23%, typical day k = 7.58%, 9.23/7.58 = 1.22

STA N97
30th highest k = 10.87%, typical day k = 8.93%, 10.87/8.93 = 1.22

STA N103
30th highest k = 9.04%, typical day k = 8.08%, 9.04/8.08 = 1.12

(1.01 + 1.22 + 1.22 + 1.12) / 4 = 1.14

The selected DHV factor is **1.14**.

No-Build 2025 and 2045 ADT, AM Peak and PM Peak volumes are shown on Plates 9 to 20.

The Build Alternative 1 includes an HSR lane. Because the traffic will vary for the AM/PM peaks depending on which direction the HSR lane is open, three separate NCHRP sheets were created for each intersection/ramp as described below:

- AM Peak – the AM peak period model was used with the MORPC hourly factor of 0.39 applied to calculate the AM peak hour volumes. AM count volumes were used in lieu of the ADT volumes on the NCHRP Link tab.
- PM Peak – the PM peak period model was used with the MORPC hourly factor of 0.28 applied to calculate the PM peak hour. PM count volumes were used in lieu of the ADT volumes on the NCHRP Link tab.

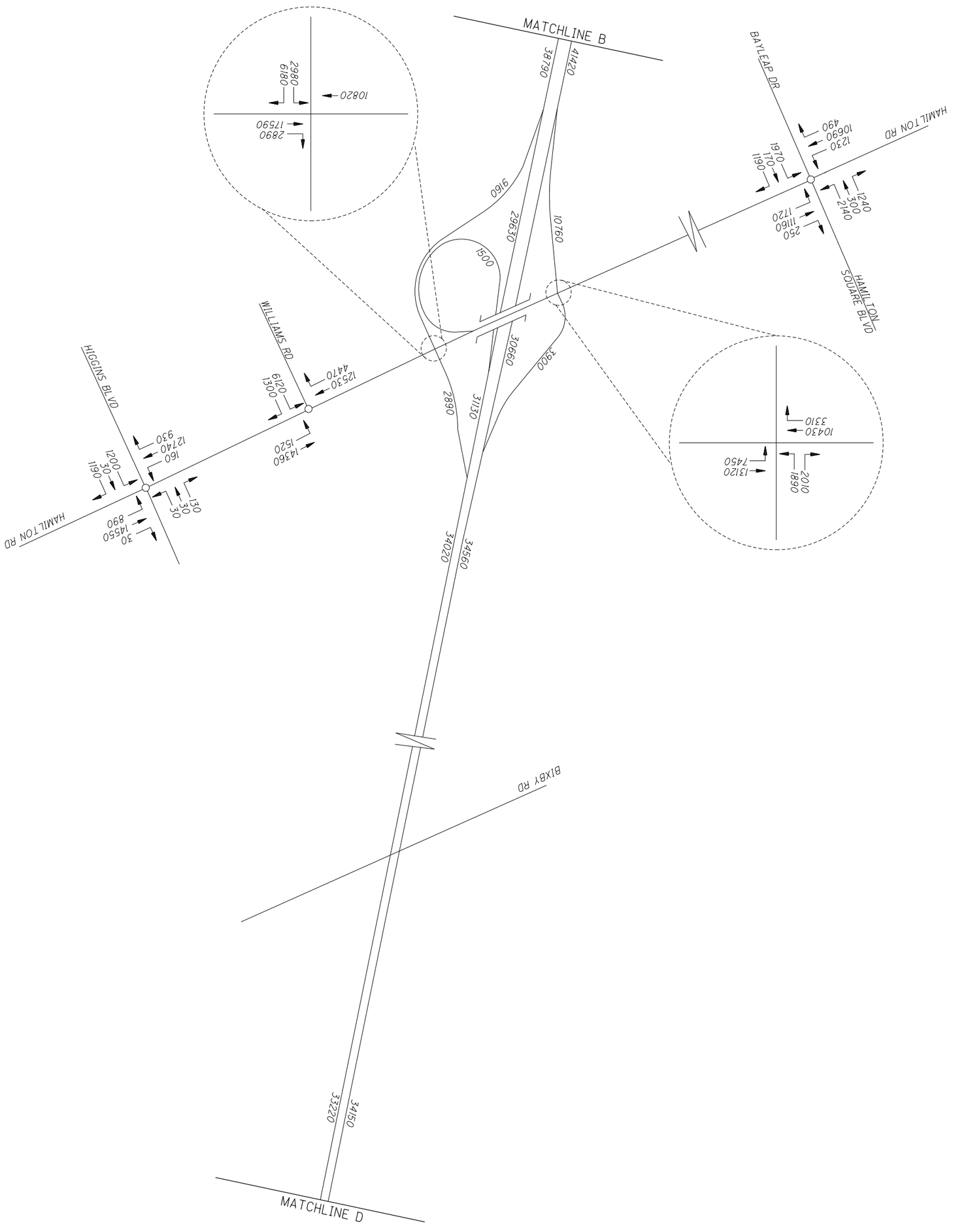
- ADT – the overall model volumes were used to determine the ADT

Build Alternative 1 2025 and 2045 ADT, AM Peak and PM Peak volumes are shown on Plates 21 to 32.

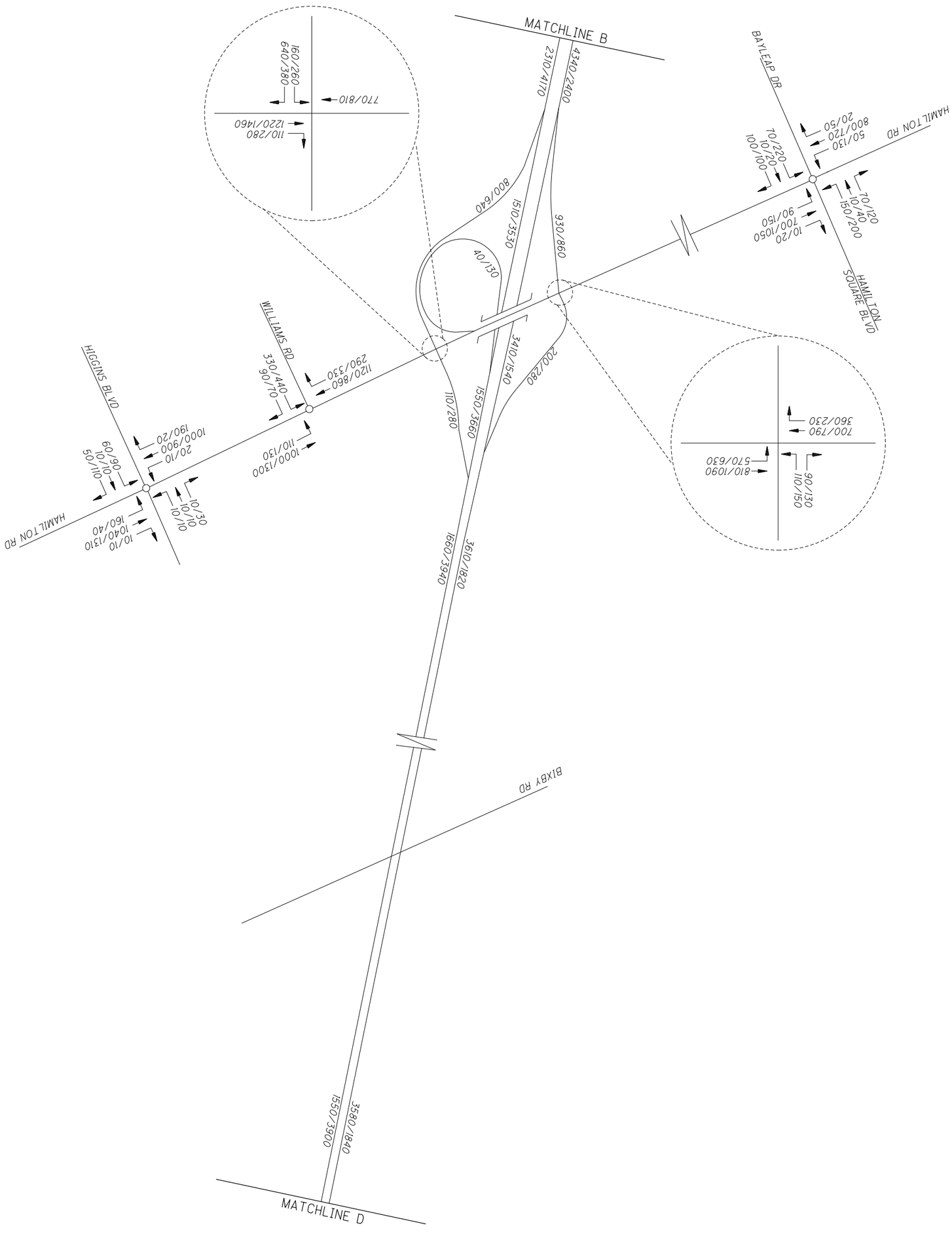
Build Alternative 2 includes a lane addition from I-270 to Pickerington Road. Build NCHRP spreadsheets were developed for each study intersection and interchanges. The remaining ramp volumes in the study area were determined by applying the NCHRP 765 methodologies to the individual ramp links. The spreadsheets included the ADT, AM peak and PM peak traffic counts as well as the MORPC 2018 and 2045 TDM model assignments. The NCHRP spreadsheets are included in the ***NCHRP Spreadsheets*** folder.

Build Alternative 2 2025 and 2045 ADT, AM Peak and PM Peak volumes are shown on Plates 33 to 44.

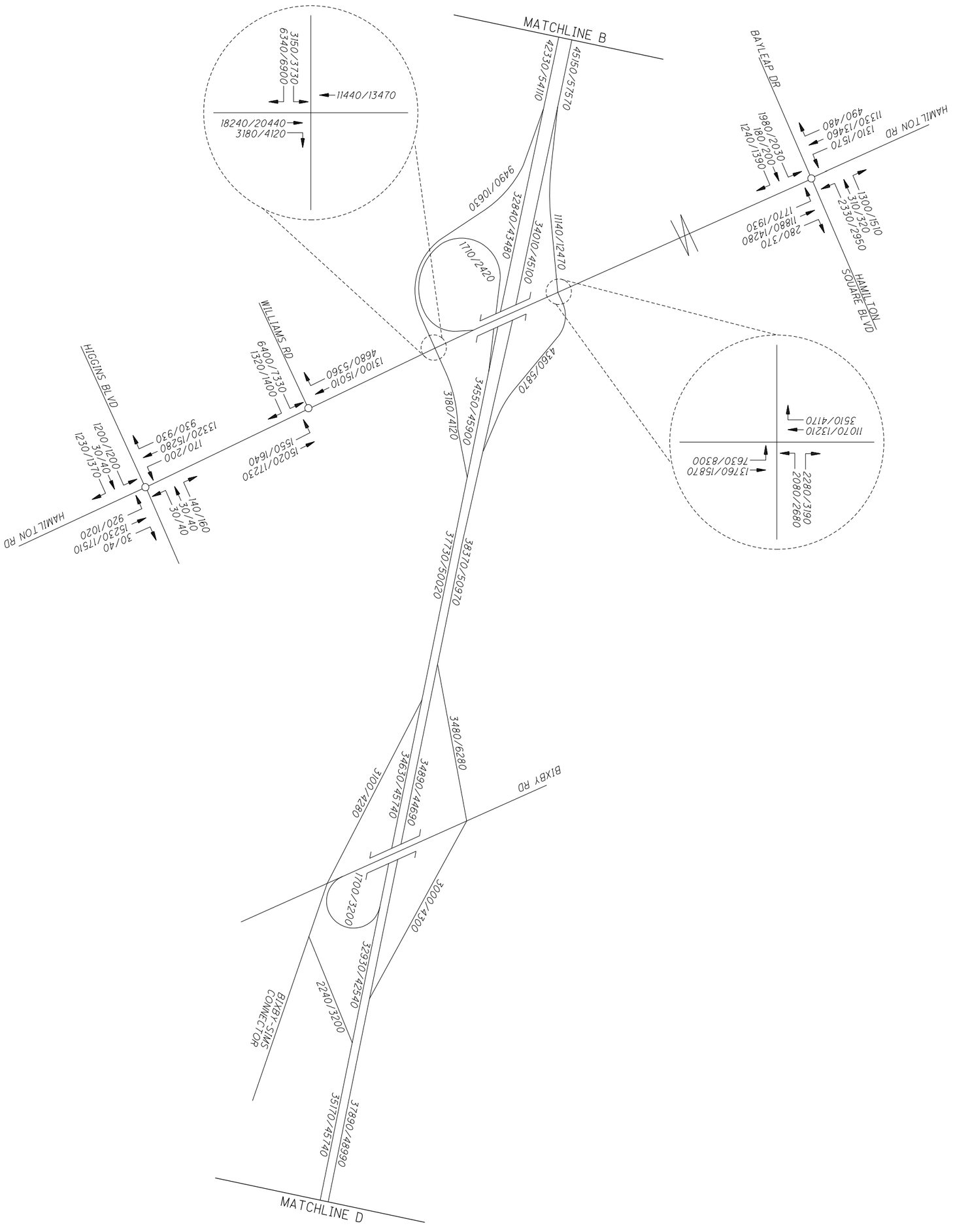
Please contact me at randy.kill@burgessniple.com or 614-459-2050 if you have any questions.



48 / 2	PID 111460	FRA/FAI - US 33 FEASIBILITY STUDY 2019 EXISTING ADT VOLUMES	ANALYST MEL DATE 08/28/20	NOT TO SCALE	



6 / 48	PID 111460	FRA/FAI - US 33 FEASIBILITY STUDY 2019 EXISTING AM/PM VOLUMES	ANALYST MEL DATE 08/28/20	NOT TO SCALE



10 / 48	PID 111460	FRA/FAI - US 33 FEASIBILITY STUDY 2025/2045 NO-BUILD ADT VOLUMES	ANALYST MEL DATE 08/28/20	NOT TO SCALE

Bixby Road Warehouse
Traffic Access Study

Prepared For:

NorthPoint Development

Prepared By:

SMART
SURVEYING · ENGINEERING · ENVIRONMENTAL
SERVICES

1900 Crown Park Court, Suite E
Columbus, OH 43235
(614) 914-5543
www.SmartServices-Inc.com

September 2019

SSI Project #: 764601

BACKGROUND

NorthPoint Development is proposing to develop a site with approximately 871,200 SF of high cube warehouse buildings. The site is located in the southeast quadrant of the intersection of Bixby Road and Rager Road, in the City of Canal Winchester. Figure 1 shows the location of the site. Two site accesses are proposed: one on Bixby Road and one on Olde Bixby Road. Figure 2 shows the proposed site plan. The permitting agency for the accesses is the Franklin County Engineer's Office (FCEO).

The FCEO is requiring a traffic study. Smart Services, Inc. has been retained by the developer to perform the traffic access study. A Memo of Understanding (MOU) dated 8/27/2019 was submitted to the FCEO. The MOU was approved on 9/6/2019. The approved MOU is in the Appendix.

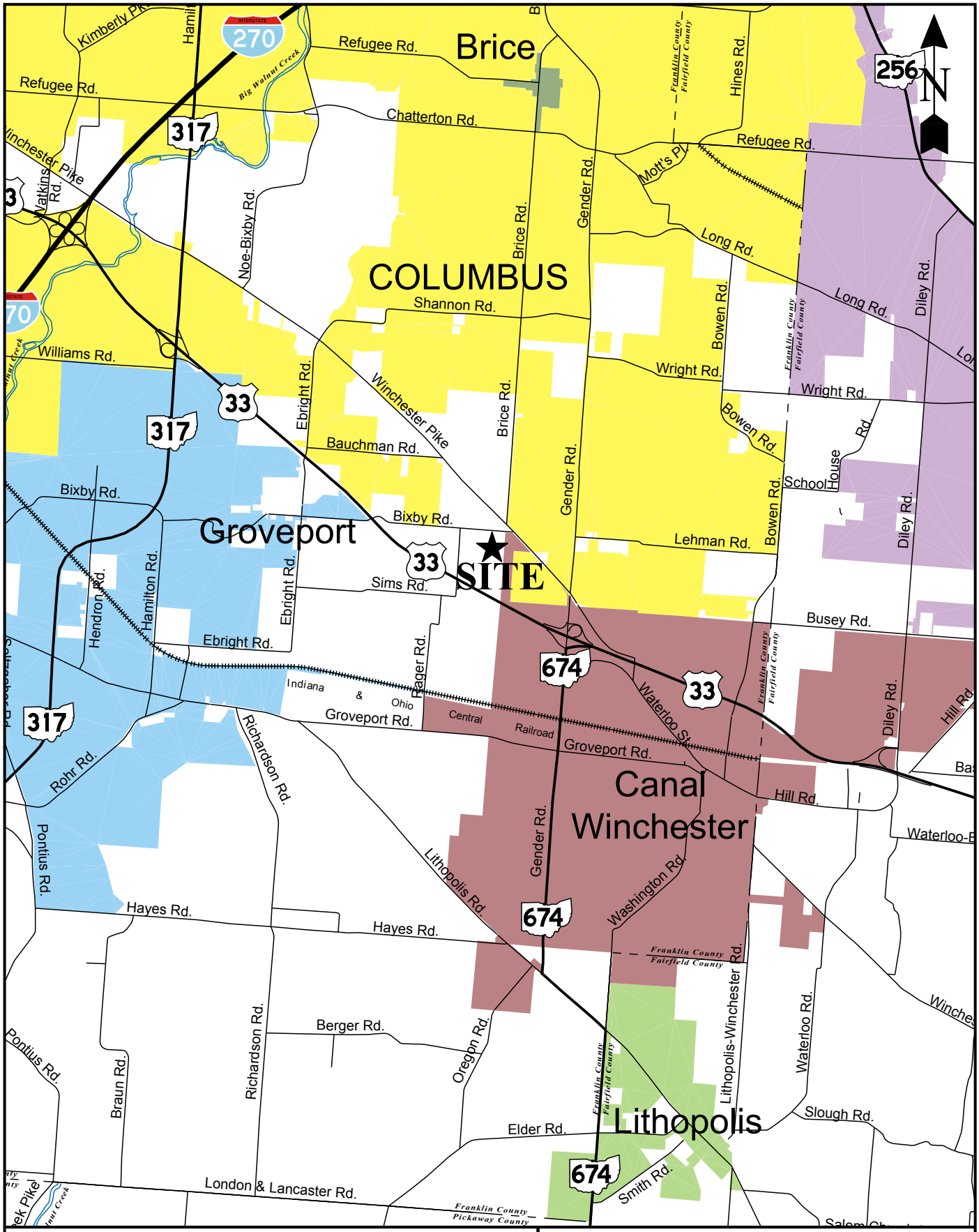
EXISTING CONDITIONS

Bixby Road in the area of the site is a two-lane section with a presumed unposted speed limit of 55 MPH. Table 1 shows the summary of the counts taken for the project. The count reports are in the Appendix.

INTERSECTION	SOURCE	AM PEAK HOUR	PM PEAK HOUR
Winchester Pike & Brice Road/Bixby Road	**Smart Services, Inc.**	**6/18/2019 7:00-8:00 AM**	**6/18/2019 4:45-5:45 PM**
Bixby Road & Olde Bixby Road	**Smart Services, Inc.**	**6/18/2019 7:15-8:15 AM**	**6/18/2019 5:00-6:00 PM**
***Bixby Road & Rager Road**	**Smart Services, Inc.**	**6/18/2019 7:15-8:15 AM**	**6/18/2019 5:00-6:00 PM**

*=Access no longer being proposed on Rager Road but used in distribution calculations

TABLE 1 – Summary of Existing Traffic Basis



BIXBY ROAD WAREHOUSE TRAFFIC ACCESS STUDY

PREPARED BY: SMART SERVICES

9/2019

FIGURE 1

SITE LOCATION

FIGURE 2

SITE LAYOUT

BIXBY ROAD WAREHOUSE TRAFFIC ACCESS STUDY

9/2019

PREPARED BY:

SMART SERVICES

PROJECTED SITE TRAFFIC

Trip Generation

The accepted method for computing trip generation in the traffic engineering profession is the *Trip Generation Manual, 10th Edition* published by the Institute of Transportation Engineers (ITE). The representative land use is "High-Cube Transload and Short-Term Storage" (ITE Code #154). The developer estimates that their PM Peak hour trucks are about 15% so the estimate for trucks is 15% in each peak hour. Table 2 shows a summary of the trip generation calculations.

Trip Distribution

The distribution of traffic for cars was based upon vehicles entering the study area during the AM Peak Hour. The AM Peak hour provides the best way to determine where people work relative to where they live. The following is the resulting car distribution (the volume basis is in brackets).

Cars

- 96% to/from the east on Bixby Road (669)
  - 47%-to/from the east on Winchester Pike (328)
  - 36%-to/from the north on Brice Road (250)
  - 13%-to/from the west on Winchester Pike (91)
- 4% to/from the west on Bixby Road (20)

Trip Distribution (Trucks) - The distribution of traffic for trucks was an assumption based upon the site's proximity to existing interchanges along US 33:

Trucks

- 100% to/from the east on Bixby Road
  - 85%-to/from the east on Winchester Pike
  - 0%-to/from the north on Brice Road
  - 15%-to/from the west on Winchester Pike
- 0% to/from the west on Bixby Road

2020 & 2030 TRAFFIC

The Franklin County Engineer's Office requires a 10-year design horizon for traffic studies. Opening day is 2020, therefore the design year is 2030. The Mid-Ohio Regional Planning Commission (MORPC) provided linear annual growth rates for area intersections. The correspondence from MORPC is in the Appendix. Table 3 shows the growth rates and corresponding factors applied to the 2019 counts.

SEGMENT	LINEAR ANNUAL GROWTH RATE	2019 TO 2020 FACTOR	2019 TO 2030 FACTOR
***Bixby Road East of Rager Road**	**0.90%**	**1.009**	**1.099**
***Bixby Road West of Rager Road**	**1.00%**	**1.010**	**1.110**
***Rager Road South of Bixby Road**	**3.00%**	**1.030**	**1.330**
Winchester Pike East of Bixby Road	**1.20%**	**1.012**	**1.132**
Brice Road North of Winchester Pike	**2.40%**	**1.024**	**1.264**
Winchester Pike West of Bixby Road	**1.10%**	**1.011**	**1.121**
Bixby Road South of Winchester Pike	**0.90%**	**1.009**	**1.099**

*=Information only, access no longer proposed on Rager Road

TABLE 3 – Growth Factor Summary

Figures 3 and 4 show the components of the 2020 'Build' traffic. Figures 5 and 6 show the components of the 2030 'Build' traffic.

TRAFFIC STUDY SUBAREA	LAND USE	TIME OF DAY	DATA SET *Trip Generation Manual, 10th Edition* (Unless noted Otherwise)	OVERRIDE WITH AVERAGE	RATE OR EQUATION FROM: *Trip Generation Manual 10th Edition*	TOTAL TRIPS	ENTERING		EXITING	
							%	TOTAL TRIPS	%	TOTAL TRIPS
Cars	**High-Cube Transload and Short-Term Storage (ITE Code #154)**			☐						
		AM Peak	**Peak Hour of Adj. Street Traffic, One Hour between 7 & 9 AM**	☐	**Average Rate= 0.08**	**59**	**77%**	**45**	**23%**	**14**
	Ind. Variable (X) = 740.52 1000 SF Gross Floor Area	**PM Peak**	**Peak Hour of Adj. Street Traffic, One Hour between 4 & 6 PM**	☐	**Average Rate= 0.10**	**74**	**28%**	**21**	**72%**	**53**
Trucks	**High-Cube Transload and Short-Term Storage (ITE Code #154)**			☐						
		AM Peak	**Peak Hour of Adj. Street Traffic, One Hour between 7 & 9 AM**	☐	**Average Rate= 0.08**	**10**	**77%**	**8**	**23%**	**2**
	Ind. Variable (X) = 130.68 1000 SF Gross Floor Area	**PM Peak**	**Peak Hour of Adj. Street Traffic, One Hour between 4 & 6 PM**	☐	**Average Rate= 0.10**	**13**	**28%**	**4**	**72%**	**9**
TOTALS				☐						
		AM Peak				**69**		**53**		**16**
		PM Peak				**87**		**25**		**62**

TABLE 2 - SITE TRIP GENERATION SUMMARY

Smart Services, Inc.

88 West Church Street
Newark, OH 43055
(740) 345-4700

File Name : winchester_pike_&_bixby_rd_brice_rd_670123_06-18-2019
Site Code :
Start Date : 6/18/2019
Page No : 1

Groups Printed- Cars - Trucks - Pedestrians

	Brice Rd Southbound					Winchester Pike Westbound					Bixby Rd Northbound					Winchester Pike Eastbound					
Start Time	Left	Thru	Right	North Crosswalk	App. Total	Left	Thru	Right	East Crosswalk	App. Total	Left	Thru	Right	South Crosswalk	App. Total	Left	Thru	Right	West Crosswalk	App. Total	Int. Total
07:00 AM	21	12	17	0	50	10	73	12	0	95	1	0	3	0	4	3	12	0	0	15	164
07:15 AM	21	21	24	0	66	5	71	4	0	80	0	2	2	0	4	5	21	0	0	26	176
07:30 AM	32	16	21	0	69	1	61	7	0	69	0	5	3	0	8	4	21	0	0	25	171
07:45 AM	29	23	13	0	65	3	64	17	0	84	1	3	1	0	5	4	21	0	0	25	179
Total	103	72	75	0	250	19	269	40	0	328	2	10	9	0	21	16	75	0	0	91	690
08:00 AM	17	16	10	0	43	9	50	15	0	74	0	3	0	0	3	2	23	0	0	25	145
08:15 AM	12	13	17	0	42	8	52	17	0	77	0	3	0	0	3	2	23	0	0	25	147
08:30 AM	18	22	13	0	53	4	25	11	0	40	1	1	0	0	2	2	33	0	0	35	130
08:45 AM	21	7	5	0	33	2	29	11	0	42	0	4	1	0	5	4	32	2	0	38	118
Total	68	58	45	0	171	23	156	54	0	233	1	11	1	0	13	10	111	2	0	123	540
04:00 PM	34	5	4	0	43	3	48	26	0	77	0	17	14	0	31	8	118	1	0	127	278
04:15 PM	26	11	8	0	45	4	47	40	0	91	1	8	17	0	26	11	121	0	0	132	294
04:30 PM	33	8	9	0	50	0	31	25	0	56	1	9	7	0	17	24	117	0	0	141	264
04:45 PM	39	6	7	0	52	2	51	32	0	85	0	13	10	0	23	18	114	0	0	132	292
Total	132	30	28	0	190	9	177	123	0	309	2	47	48	0	97	61	470	1	0	532	1128
05:00 PM	41	8	16	0	65	5	46	47	0	98	0	20	17	0	37	16	134	0	0	150	350
05:15 PM	32	13	11	0	56	3	56	39	0	98	1	16	17	0	34	30	143	0	0	173	361
05:30 PM	38	11	7	0	56	2	47	23	0	72	1	17	12	0	30	28	122	0	0	150	308
05:45 PM	32	6	9	0	47	0	43	40	0	83	2	17	15	0	34	13	96	1	0	110	274
Total	143	38	43	0	224	10	192	149	0	351	4	70	61	0	135	87	495	1	0	583	1293
Grand Total	446	198	191	0	835	61	794	366	0	1221	9	138	119	0	266	174	1151	4	0	1329	3651
Apprch %	53.4	23.7	22.9	0		5	65	30	0		3.4	51.9	44.7	0		13.1	86.6	0.3	0		
Total %	12.2	5.4	5.2	0	22.9	1.7	21.7	10	0	33.4	0.2	3.8	3.3	0	7.3	4.8	31.5	0.1	0	36.4	
Cars	441	196	190	0	827	61	784	365	0	1210	9	137	119	0	265	172	1138	4	0	1314	3616
% Cars	98.9	99	99.5	0	99	100	98.7	99.7	0	99.1	100	99.3	100	0	99.6	98.9	98.9	100	0	98.9	99
Trucks	5	2	1	0	8	0	10	1	0	11	0	1	0	0	1	2	13	0	0	15	35
% Trucks	1.1	1	0.5	0	1	0	1.3	0.3	0	0.9	0	0.7	0	0	0.4	1.1	1.1	0	0	1.1	1
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Smart Services, Inc.

88 West Church Street
Newark, OH 43055
(740) 345-4700

File Name : winchester_pike_&_bixby_rd_brice_rd_670123_06-18-2019
Site Code :
Start Date : 6/18/2019
Page No : 2

	Brice Rd Southbound					Winchester Pike Westbound					Bixby Rd Northbound					Winchester Pike Eastbound					
Start Time	Left	Thru	Right	North Crosswalk	App. Total	Left	Thru	Right	East Crosswalk	App. Total	Left	Thru	Right	South Crosswalk	App. Total	Left	Thru	Right	West Crosswalk	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	21	12	17	0	50	10	73	12	0	95	1	0	3	0	4	3	12	0	0	15	164
07:15 AM	21	21	24	0	66	5	71	4	0	80	0	2	2	0	4	5	21	0	0	26	176
07:30 AM	32	16	21	0	69	1	61	7	0	69	0	5	3	0	8	4	21	0	0	25	171
07:45 AM	29	23	13	0	65	3	64	17	0	84	1	3	1	0	5	4	21	0	0	25	179
Total Volume	103	72	75	0	250	19	269	40	0	328	2	10	9	0	21	16	75	0	0	91	690
% App. Total	41.2	28.8	30	0		5.8	82	12.2	0		9.5	47.6	42.9	0		17.6	82.4	0	0		
PHF	.805	.783	.781	.000	.906	.475	.921	.588	.000	.863	.500	.500	.750	.000	.656	.800	.893	.000	.000	.875	.964
Cars	102	72	75	0	249	19	266	40	0	325	2	10	9	0	21	16	74	0	0	90	685
% Cars	99.0	100	100	0	99.6	100	98.9	100	0	99.1	100	100	100	0	100	100	98.7	0	0	98.9	99.3
Trucks	1	0	0	0	1	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	5
% Trucks	1.0	0	0	0	0.4	0	1.1	0	0	0.9	0	0	0	0	0	0	1.3	0	0	1.1	0.7
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	39	6	7	0	52	2	51	32	0	85	0	13	10	0	23	18	114	0	0	132	292
05:00 PM	41	8	16	0	65	5	46	47	0	98	0	20	17	0	37	16	134	0	0	150	350
05:15 PM	32	13	11	0	56	3	56	39	0	98	1	16	17	0	34	30	143	0	0	173	361
05:30 PM	38	11	7	0	56	2	47	23	0	72	1	17	12	0	30	28	122	0	0	150	308
Total Volume	150	38	41	0	229	12	200	141	0	353	2	66	56	0	124	92	513	0	0	605	1311
% App. Total	65.5	16.6	17.9	0		3.4	56.7	39.9	0		1.6	53.2	45.2	0		15.2	84.8	0	0		
PHF	.915	.731	.641	.000	.881	.600	.893	.750	.000	.901	.500	.825	.824	.000	.838	.767	.897	.000	.000	.874	.908
Cars	149	37	41	0	227	12	198	141	0	351	2	66	56	0	124	92	510	0	0	602	1304
% Cars	99.3	97.4	100	0	99.1	100	99.0	100	0	99.4	100	100	100	0	100	100	99.4	0	0	99.5	99.5
Trucks	1	1	0	0	2	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	7
% Trucks	0.7	2.6	0	0	0.9	0	1.0	0	0	0.6	0	0	0	0	0	0	0.6	0	0	0.5	0.5
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Smart Services, Inc.

88 W. Church Street
Newark, OH 43055
(740) 345-4700

File Name : Bixby_Rd_&_Olde_Bixby_Rd_670136_06-18-2019
Site Code :
Start Date : 6/18/2019
Page No : 1

Groups Printed- Cars - Trucks

	Bixby Rd Westbound			Olde Bixby Rd Northbound			Bixby Rd Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	23	23	0	0	0	4	0	4	27
07:15 AM	1	27	28	0	0	0	4	0	4	32
07:30 AM	0	17	17	0	0	0	8	0	8	25
07:45 AM	0	23	23	0	0	0	5	0	5	28
Total	1	90	91	0	0	0	21	0	21	112
08:00 AM	0	26	26	0	0	0	3	0	3	29
08:15 AM	0	21	21	0	0	0	3	0	3	24
08:30 AM	0	27	27	0	0	0	1	0	1	28
08:45 AM	1	10	11	0	0	0	5	0	5	16
Total	1	84	85	0	0	0	12	0	12	97
04:00 PM	1	8	9	0	1	1	30	0	30	40
04:15 PM	0	15	15	0	1	1	25	0	25	41
04:30 PM	1	8	9	0	1	1	16	0	16	26
04:45 PM	0	8	8	0	0	0	23	0	23	31
Total	2	39	41	0	3	3	94	0	94	138
05:00 PM	0	13	13	0	1	1	35	0	35	49
05:15 PM	0	16	16	0	0	0	35	0	35	51
05:30 PM	0	13	13	0	0	0	33	0	33	46
05:45 PM	0	6	6	0	0	0	31	0	31	37
Total	0	48	48	0	1	1	134	0	134	183
Grand Total	4	261	265	0	4	4	261	0	261	530
Apprch %	1.5	98.5		0	100		100	0		
Total %	0.8	49.2	50	0	0.8	0.8	49.2	0	49.2	
Cars	4	259	263	0	4	4	260	0	260	527
% Cars	100	99.2	99.2	0	100	100	99.6	0	99.6	99.4
Trucks	0	2	2	0	0	0	1	0	1	3
% Trucks	0	0.8	0.8	0	0	0	0.4	0	0.4	0.6

Smart Services, Inc.

88 W. Church Street
Newark, OH 43055
(740) 345-4700

File Name : Bixby_Rd_&_Olde_Bixby_Rd_670136_06-18-2019
Site Code :
Start Date : 6/18/2019

	Bixby Rd Westbound			Olde Bixby Rd Northbound			Bixby Rd Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	1	27	28	0	0	0	4	0	4	32
07:30 AM	0	17	17	0	0	0	8	0	8	25
07:45 AM	0	23	23	0	0	0	5	0	5	28
08:00 AM	0	26	26	0	0	0	3	0	3	29
Total Volume	1	93	94	0	0	0	20	0	20	114
% App. Total	1.1	98.9		0	0		100	0		
PHF	.250	.861	.839	.000	.000	.000	.625	.000	.625	.891
Cars	1	93	94	0	0	0	20	0	20	114
% Cars	100	100	100	0	0	0	100	0	100	100
Trucks	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	0	13	13	0	1	1	35	0	35	49
05:15 PM	0	16	16	0	0	0	35	0	35	51
05:30 PM	0	13	13	0	0	0	33	0	33	46
05:45 PM	0	6	6	0	0	0	31	0	31	37
Total Volume	0	48	48	0	1	1	134	0	134	183
% App. Total	0	100		0	100		100	0		
PHF	.000	.750	.750	.000	.250	.250	.957	.000	.957	.897
Cars	0	47	47	0	1	1	134	0	134	182
% Cars	0	97.9	97.9	0	100	100	100	0	100	99.5
Trucks	0	1	1	0	0	0	0	0	0	1
% Trucks	0	2.1	2.1	0	0	0	0	0	0	0.5

Smart Services, Inc.

88 W. Church Street
Newark, OH 43055
(740) 345-4700

File Name : Bixby_Rd_&_Rager_Rd_670133_06-18-2019
Site Code :
Start Date : 6/18/2019
Page No : 1

Groups Printed- Cars - Trucks

	Bixby Rd Westbound			Rager Rd Northbound			Bixby Rd Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	2	21	23	0	0	0	3	0	3	26
07:15 AM	1	25	26	0	0	0	4	0	4	30
07:30 AM	1	16	17	0	0	0	8	0	8	25
07:45 AM	0	22	22	0	1	1	3	0	3	26
Total	4	84	88	0	1	1	18	0	18	107
08:00 AM	1	26	27	0	1	1	3	0	3	31
08:15 AM	1	20	21	0	0	0	3	0	3	24
08:30 AM	0	26	26	0	0	0	2	0	2	28
08:45 AM	0	10	10	0	1	1	4	0	4	15
Total	2	82	84	0	2	2	12	0	12	98
04:00 PM	0	10	10	0	0	0	30	0	30	40
04:15 PM	0	15	15	0	2	2	23	0	23	40
04:30 PM	0	7	7	0	3	3	14	0	14	24
04:45 PM	2	6	8	0	1	1	22	0	22	31
Total	2	38	40	0	6	6	89	0	89	135
05:00 PM	0	13	13	0	3	3	32	0	32	48
05:15 PM	3	14	17	0	1	1	34	0	34	52
05:30 PM	0	13	13	1	3	4	27	0	27	44
05:45 PM	0	4	4	1	0	1	33	0	33	38
Total	3	44	47	2	7	9	126	0	126	182
Grand Total	11	248	259	2	16	18	245	0	245	522
Apprch %	4.2	95.8		11.1	88.9		100	0		
Total %	2.1	47.5	49.6	0.4	3.1	3.4	46.9	0	46.9	
Cars	11	246	257	2	15	17	244	0	244	518
% Cars	100	99.2	99.2	100	93.8	94.4	99.6	0	99.6	99.2
Trucks	0	2	2	0	1	1	1	0	1	4
% Trucks	0	0.8	0.8	0	6.2	5.6	0.4	0	0.4	0.8

Smart Services, Inc.

88 W. Church Street
Newark, OH 43055
(740) 345-4700

File Name : Bixby_Rd_&_Rager_Rd_670133_06-18-2019
Site Code :
Start Date : 6/18/2019

	Bixby Rd Westbound			Rager Rd Northbound			Bixby Rd Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	1	25	26	0	0	0	4	0	4	30
07:30 AM	1	16	17	0	0	0	8	0	8	25
07:45 AM	0	22	22	0	1	1	3	0	3	26
08:00 AM	1	26	27	0	1	1	3	0	3	31
Total Volume	3	89	92	0	2	2	18	0	18	112
% App. Total	3.3	96.7		0	100		100	0		
PHF	.750	.856	.852	.000	.500	.500	.563	.000	.563	.903
Cars	3	89	92	0	2	2	18	0	18	112
% Cars	100	100	100	0	100	100	100	0	100	100
Trucks	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	0	13	13	0	3	3	32	0	32	48
05:15 PM	3	14	17	0	1	1	34	0	34	52
05:30 PM	0	13	13	1	3	4	27	0	27	44
05:45 PM	0	4	4	1	0	1	33	0	33	38
Total Volume	3	44	47	2	7	9	126	0	126	182
% App. Total	6.4	93.6		22.2	77.8		100	0		
PHF	.250	.786	.691	.500	.583	.563	.926	.000	.926	.875
Cars	3	43	46	2	7	9	125	0	125	180
% Cars	100	97.7	97.9	100	100	100	99.2	0	99.2	98.9
Trucks	0	1	1	0	0	0	1	0	1	2
% Trucks	0	2.3	2.1	0	0	0	0.8	0	0.8	1.1

From: Hwashik Jang
To: Todd Stanhope; Zhuojun Jiang
Cc: Nick Gill; "William Hebble"; "Anne Gregory"
Subject: RE: Growth Rate Request - Bixby Road
Date: Tuesday, July 30, 2019 10:47:19 AM
Attachments: image003.png

Todd,

We have completed processing growth rates for your traffic study.
Please use a linear annual growth rate as summarized in the following table below.

Location	Linear Annual Growth Rate
Bixby Rd e/o Rager Rd	0.90%
Bixby Rd w/o Rager Rd	1.00%
Rager Rd s/o Bixby Rd	3.00%
Winchester Pike e/o Bixby Rd	1.20%
Brice Rd n/o Winchester Pike	2.40%
Winchester Pike w/o Bixby Rd	1.10%
Bixby Rd s/o Winchester Pike	0.90%

Note: The above rates were derived based on planning level analysis by using MORPC's regional travel demand model.

If you have any other questions, please let me know.

Thanks,

HWASHIK JANG
Senior Planner | **Mid-Ohio Regional Planning Commission**
T: 614.233.4145 | hjang@morpc.org
111 Liberty Street, Suite 100 | Columbus, OH 43215

MID-OHIO REGIONAL MORPC PLANNING COMMISSION

From: Todd Stanhope [mailto:tstanhope@smartservices-inc.com]
Sent: Tuesday, July 2, 2019 8:09 AM
To: Zhuojun Jiang <zjiang@morpc.org>
Cc: Nick Gill <NGILL@morpc.org>; Hwashik Jang <hjang@morpc.org>; 'William Hebble' <whebble@franklincountyengineer.org>; 'Anne Gregory' <agregory@northpointkc.com>
Subject: Growth Rate Request - Bixby Road

Zhuojun

We are performing a traffic study for a site that is located on the south side of Bixby Road between Rager Road and Winchester Pike. Please provide a growth rate for all legs of the following intersections:

-Winchester Pike & Bixby Road/Brice Road
-Bixby Road & Rager Road

Below is the standard information required to accompany growth rate requests:

1. Traffic Data upon which you would be applying these growth rates (preferably 24 hour counts). As part of the project, a peak hour (7-9 AM& 4-6 PM) turning movement counts were taken at the intersections of Winchester Pike & Bixby Road/Brice Road and Bixby Road & Rager Road.
2. Open Year & Design Year, for this study: 2020 and 2030
3. Roadway network assumptions: Any roadway assumptions/changes in the vicinity, such as change in number of lanes or roadway alignments, etc: None anticipated.
4. Land use assumptions: General info on proposed site location & development, such as: site map, Trip Generation (excel file, preferably). Trip generation for the 812,000 SF of High Cube Warehouse will be calculated as part of the traffic study and is not available at this time.
5. Project Review Contact Person: Bill Hebble will be reviewing the study for the Franklin County Engineer's Office. His e-mail address is in the cc: line.

Thank you!

Todd J. Stanhope, PE, PTOE
Director of Traffic Engineering

***Smart Services, Inc.* (Columbus Office)**
*A **DBE / EDGE** Certified Business*

1900 Crown Park Court, Suite E
Columbus, Ohio 43235
Ph: 614-914-5543
www.SmartServices-Inc.com

Smart Services, Inc.

88 W. Church Street
Newark, OH 43055
(740) 345-4700

File Name : Gender_Road_&_Winchester_Pike_577841_10-18-2018
Site Code :
Start Date : 10/18/2018
Page No : 1

Groups Printed- Cars - Trucks - Pedestrians

	Gender Rd Southbound					Winchester Pike Westbound					Gender Rd Northbound					Winchester Pike Eastbound					
Start Time	Left	Thru	Right	North Crosswalk	App. Total	Left	Thru	Right	East Crosswalk	App. Total	Left	Thru	Right	South Crosswalk	App. Total	Left	Thru	Right	West Crosswalk	App. Total	Int. Total
07:00 AM	1	214	78	0	293	25	12	0	0	37	106	96	5	0	207	12	1	43	0	56	593
07:15 AM	1	226	82	1	310	30	22	1	0	53	106	106	8	0	220	13	0	48	0	61	644
07:30 AM	1	198	66	0	265	13	14	0	0	27	114	129	14	0	257	12	2	43	0	57	606
07:45 AM	1	180	64	0	245	12	6	2	0	20	105	154	7	0	266	9	1	36	0	46	577
Total	4	818	290	1	1113	80	54	3	0	137	431	485	34	0	950	46	4	170	0	220	2420
08:00 AM	1	171	39	0	211	12	10	1	1	24	78	146	5	0	229	12	0	33	0	45	509
08:15 AM	2	155	29	0	186	8	5	1	0	14	41	130	5	0	176	13	1	53	0	67	443
08:30 AM	2	206	19	1	228	20	8	1	0	29	42	102	8	0	152	8	0	63	0	71	480
08:45 AM	2	196	22	0	220	16	1	1	0	18	44	136	7	0	187	14	1	67	0	82	507
Total	7	728	109	1	845	56	24	4	1	85	205	514	25	0	744	47	2	216	0	265	1939
04:00 PM	4	173	19	0	196	16	9	1	0	26	78	171	12	0	261	39	7	117	0	163	646
04:15 PM	3	174	15	0	192	23	2	4	0	29	62	223	8	0	293	69	2	105	0	176	690
04:30 PM	2	190	21	0	213	13	3	4	0	20	78	232	13	0	323	60	5	122	0	187	743
04:45 PM	2	172	23	0	197	18	12	4	0	34	64	222	12	0	298	82	1	84	0	167	696
Total	11	709	78	0	798	70	26	13	0	109	282	848	45	0	1175	250	15	428	0	693	2775
05:00 PM	6	173	17	0	196	12	11	7	0	30	81	225	12	0	318	61	6	101	0	168	712
05:15 PM	5	225	10	0	240	15	8	3	0	26	72	259	9	0	340	85	7	132	0	224	830
05:30 PM	2	222	12	0	236	17	2	3	0	22	75	233	1	0	309	74	1	140	0	215	782
05:45 PM	2	198	13	2	215	28	4	1	0	33	57	249	12	0	318	76	4	113	0	193	759
Total	15	818	52	2	887	72	25	14	0	111	285	966	34	0	1285	296	18	486	0	800	3083
Grand Total	37	3073	529	4	3643	278	129	34	1	442	1203	2813	138	0	4154	639	39	1300	0	1978	10217
Apprch %	1	84.4	14.5	0.1		62.9	29.2	7.7	0.2		29	67.7	3.3	0		32.3	2	65.7	0		
Total %	0.4	30.1	5.2	0	35.7	2.7	1.3	0.3	0	4.3	11.8	27.5	1.4	0	40.7	6.3	0.4	12.7	0	19.4	
Cars	35	2965	507	0	3507	254	126	32	0	412	1180	2736	119	0	4035	614	39	1287	0	1940	9894
% Cars	94.6	96.5	95.8	0	96.3	91.4	97.7	94.1	0	93.2	98.1	97.3	86.2	0	97.1	96.1	100	99	0	98.1	96.8
Trucks	2	108	22	0	132	24	3	2	0	29	23	77	19	0	119	25	0	13	0	38	318
% Trucks	5.4	3.5	4.2	0	3.6	8.6	2.3	5.9	0	6.6	1.9	2.7	13.8	0	2.9	3.9	0	1	0	1.9	3.1
Pedestrians	0	0	0	4	4	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	5
% Pedestrians	0	0	0	100	0.1	0	0	0	100	0.2	0	0	0	0	0	0	0	0	0	0	0

Smart Services, Inc.

88 W. Church Street
Newark, OH 43055
(740) 345-4700

File Name : Gender_Road_&_Winchester_Pike_577841_10-18-2018
Site Code :
Start Date : 10/18/2018
Page No : 2

	Gender Rd Southbound					Winchester Pike Westbound					Gender Rd Northbound					Winchester Pike Eastbound					
Start Time	Left	Thru	Right	North Crosswalk	App. Total	Left	Thru	Right	East Crosswalk	App. Total	Left	Thru	Right	South Crosswalk	App. Total	Left	Thru	Right	West Crosswalk	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	1	214	78	0	293	25	12	0	0	37	106	96	5	0	207	12	1	43	0	56	593
07:15 AM	1	226	82	1	310	30	22	1	0	53	106	106	8	0	220	13	0	48	0	61	644
07:30 AM	1	198	66	0	265	13	14	0	0	27	114	129	14	0	257	12	2	43	0	57	606
07:45 AM	1	180	64	0	245	12	6	2	0	20	105	154	7	0	266	9	1	36	0	46	577
Total Volume	4	818	290	1	1113	80	54	3	0	137	431	485	34	0	950	46	4	170	0	220	2420
% App. Total	0.4	73.5	26.1	0.1		58.4	39.4	2.2	0		45.4	51.1	3.6	0		20.9	1.8	77.3	0		
PHF	1.00	.905	.884	.250	.898	.667	.614	.375	.000	.646	.945	.787	.607	.000	.893	.885	.500	.885	.000	.902	.939
Cars	3	781	285	0	1069	75	53	3	0	131	422	454	23	0	899	36	4	169	0	209	2308
% Cars	75.0	95.5	98.3	0	96.0	93.8	98.1	100	0	95.6	97.9	93.6	67.6	0	94.6	78.3	100	99.4	0	95.0	95.4
Trucks	1	37	5	0	43	5	1	0	0	6	9	31	11	0	51	10	0	1	0	11	111
% Trucks	25.0	4.5	1.7	0	3.9	6.3	1.9	0	0	4.4	2.1	6.4	32.4	0	5.4	21.7	0	0.6	0	5.0	4.6
Pedestrians	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Pedestrians	0	0	0	100	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	6	173	17	0	196	12	11	7	0	30	81	225	12	0	318	61	6	101	0	168	712
05:15 PM	5	225	10	0	240	15	8	3	0	26	72	259	9	0	340	85	7	132	0	224	830
05:30 PM	2	222	12	0	236	17	2	3	0	22	75	233	1	0	309	74	1	140	0	215	782
05:45 PM	2	198	13	2	215	28	4	1	0	33	57	249	12	0	318	76	4	113	0	193	759
Total Volume	15	818	52	2	887	72	25	14	0	111	285	966	34	0	1285	296	18	486	0	800	3083
% App. Total	1.7	92.2	5.9	0.2		64.9	22.5	12.6	0		22.2	75.2	2.6	0		37	2.2	60.8	0		
PHF	.625	.909	.765	.250	.924	.643	.568	.500	.000	.841	.880	.932	.708	.000	.945	.871	.643	.868	.000	.893	.929
Cars	15	804	51	0	870	70	25	14	0	109	280	958	33	0	1271	290	18	484	0	792	3042
% Cars	100	98.3	98.1	0	98.1	97.2	100	100	0	98.2	98.2	99.2	97.1	0	98.9	98.0	100	99.6	0	99.0	98.7
Trucks	0	14	1	0	15	2	0	0	0	2	5	8	1	0	14	6	0	2	0	8	39
% Trucks	0	1.7	1.9	0	1.7	2.8	0	0	0	1.8	1.8	0.8	2.9	0	1.1	2.0	0	0.4	0	1.0	1.3
Pedestrians	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
% Pedestrians	0	0	0	100	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1

From: Hwashik Jang
To: Todd Stanhope
Cc: Nick Gill; Dan Blechschmidt; "Matthew Peoples"; "Tom Warner"; Zhuojun Jiang
Subject: RE: Gender Road & Winchester Pike Growth Rate Request
Date: Monday, December 19, 2016 2:56:57 PM

Todd,

We have completed processing growth rates at the intersection of Gender Road & Winchester Pike. Please use a linear annual growth rate as summarized in the following table below.

Location	Linear Annual Growth Rate
Winchester PK e/o Gender Rd	1.00%
Gender Rd n/o Winchester PK	1.60%
Winchester PK w/o Gender Rd	1.80%
Gender Rd s/o Winchester PK	1.70%

Note: This is planning level analysis based on MORPC regional travel demand model.

If you have any other questions, please let me know.

Thanks,

Hwashik

Hwashik Jang | hjang@morpc.org | MORPC
Tel 614.233.4145 | Fax 614.233.4245

From: Todd Stanhope [mailto:tstanhope@smartservices-inc.com]
Sent: Tuesday, December 13, 2016 2:08 PM
To: Zhuojun Jiang <zjiang@morpc.org>
Cc: Hwashik Jang <hjang@morpc.org>; Nick Gill <NGILL@morpc.org>; Dan Blechschmidt <drblechschmidt@columbus.gov>; 'Matthew Peoples' <mpeoples@canalwinchesterohio.gov>; 'Tom Warner' <twarner@advancedcivildesign.com>
Subject: Gender Road & Winchester Pike Growth Rate Request

Zhuojun

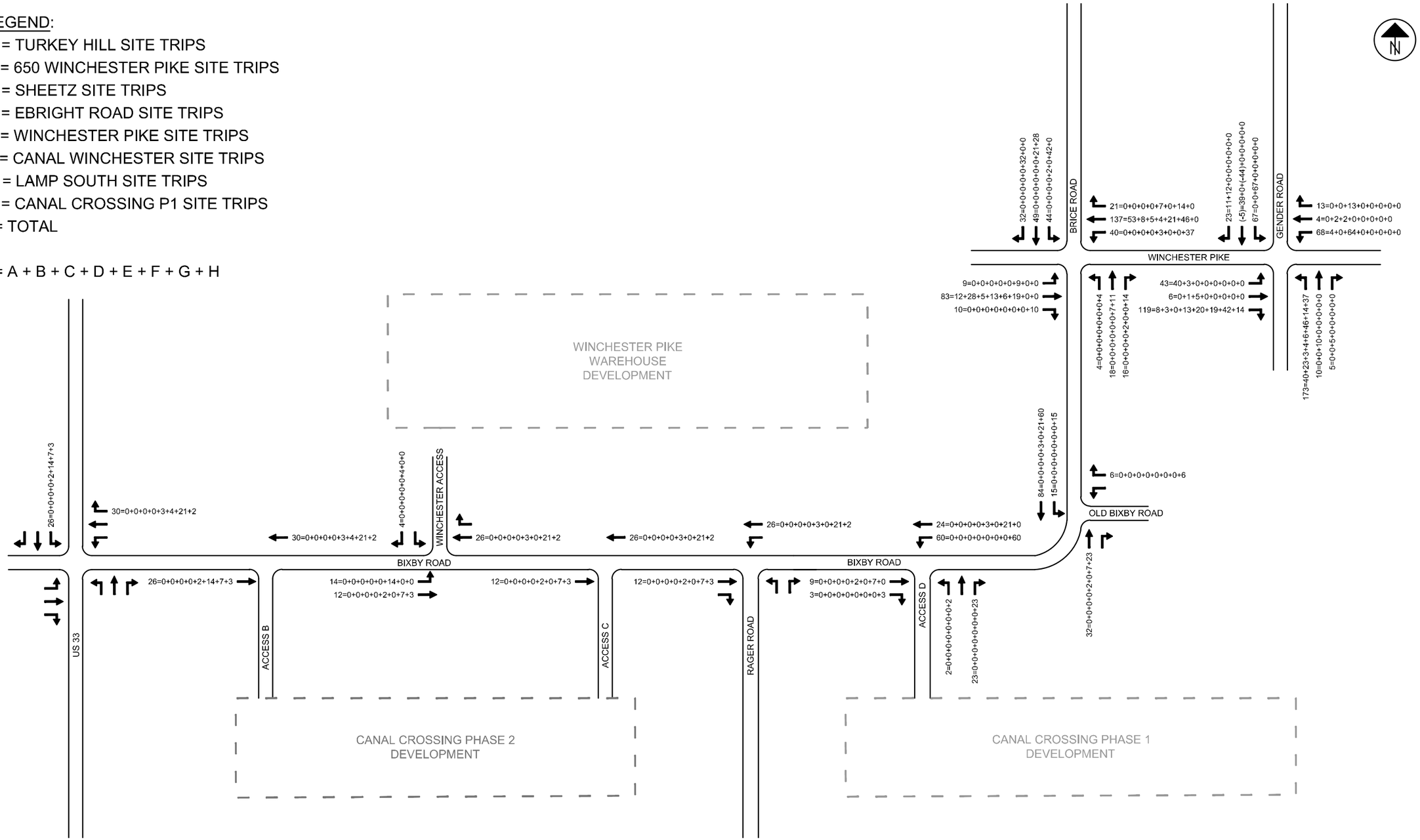
We are performing a traffic study that includes the intersection of Gender Road & Winchester Pike. Please provide an annual growth rate for all legs of the intersection.

1. Traffic Data upon which you would be applying these growth rates (preferably 24 hour counts). A peak hour turning movement count at the intersection of Gender Road & Winchester Pike was taken as part of the project and is attached.
2. Open Year & Design Year, for this study: 2017 and 2027

Additional Background Traffic Volumes

LEGEND:
A = TURKEY HILL SITE TRIPS
B = 650 WINCHESTER PIKE SITE TRIPS
C = SHEETZ SITE TRIPS
D = EBRIGHT ROAD SITE TRIPS
E = WINCHESTER PIKE SITE TRIPS
F = CANAL WINCHESTER SITE TRIPS
G = LAMP SOUTH SITE TRIPS
H = CANAL CROSSING P1 SITE TRIPS
I = TOTAL

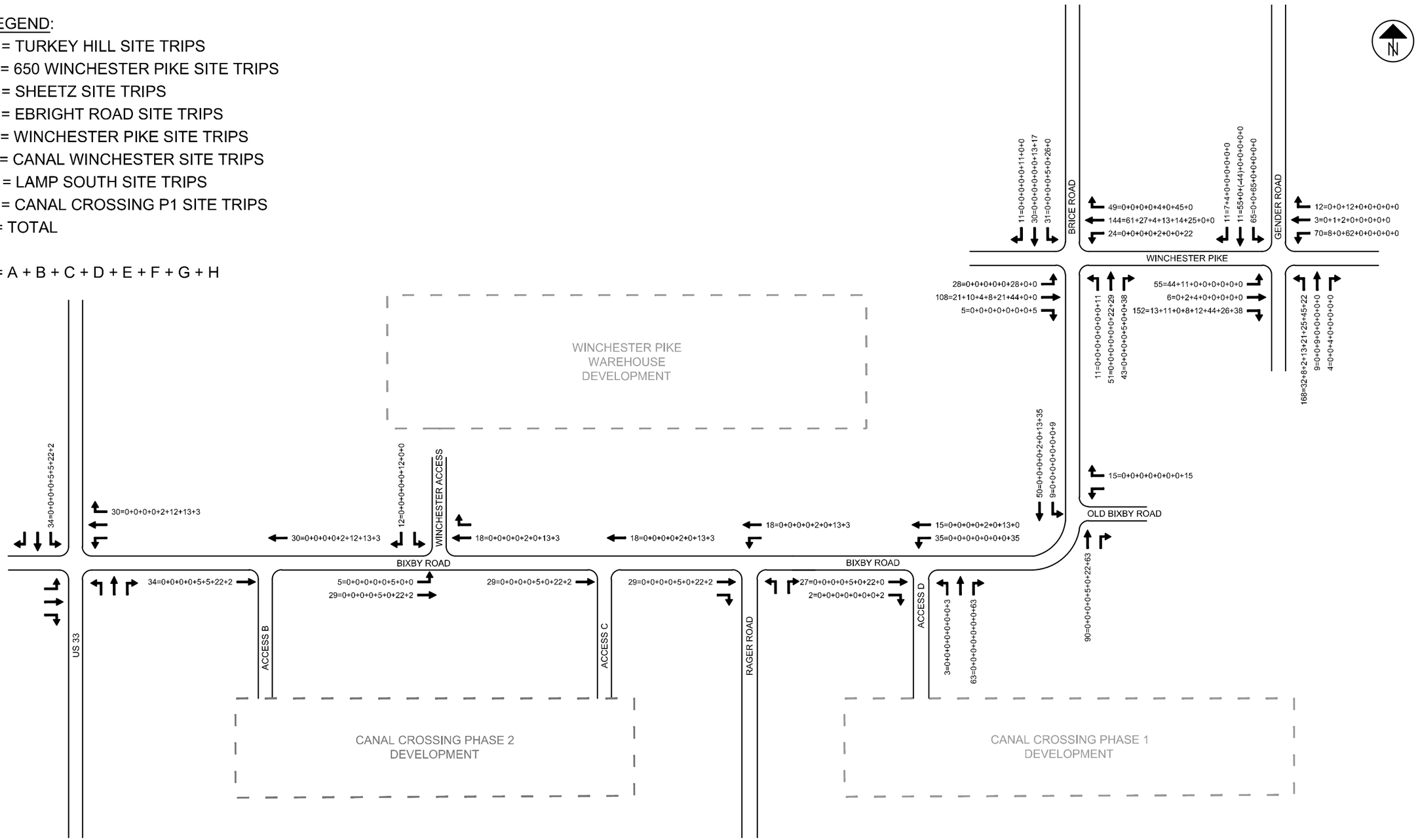
I = A + B + C + D + E + F + G + H



Additional Background Volumes—AM Peak Hour

LEGEND:
A = TURKEY HILL SITE TRIPS
B = 650 WINCHESTER PIKE SITE TRIPS
C = SHEETZ SITE TRIPS
D = EBRIGHT ROAD SITE TRIPS
E = WINCHESTER PIKE SITE TRIPS
F = CANAL WINCHESTER SITE TRIPS
G = LAMP SOUTH SITE TRIPS
H = CANAL CROSSING P1 SITE TRIPS
I = TOTAL

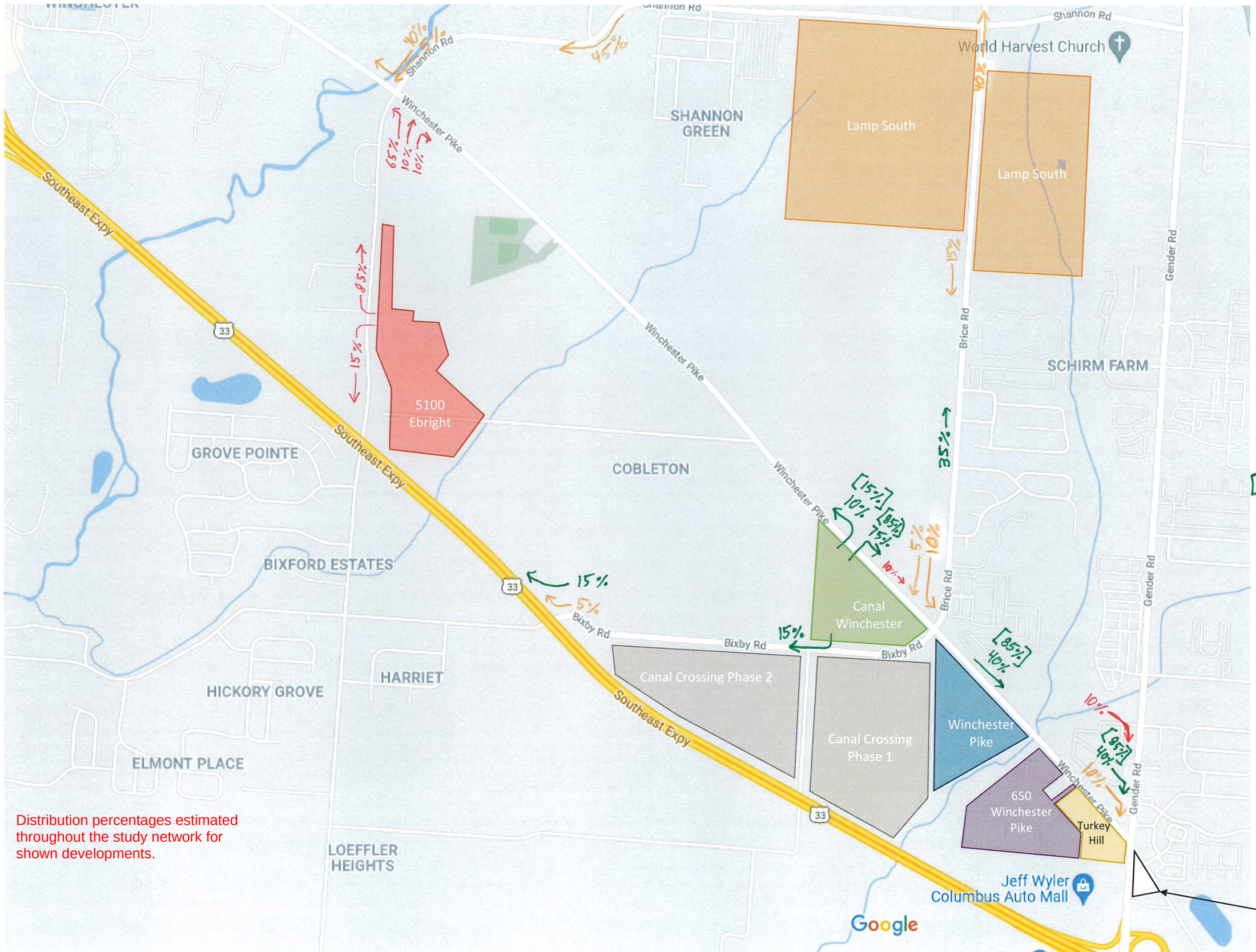
I = A + B + C + D + E + F + G + H



Additional Background Volumes—PM Peak Hour

Provided Trip Generation Tables & Estimated Trip Distribution for the following developments:

5100 Ebright, Lamp South, Canal Winchester



Distribution percentages estimated throughout the study network for shown developments.

Subarea	LUC	UNITS	Daily	AM PEAK			PM PEAK		
				TOTAL	IN	OUT	TOTAL	IN	OUT
A	210	86	905	66	17	50	88	55	33
B	220	234	1,728	107	25	82	126	79	47
TOTAL			2,633	173	42	132	214	134	80

TRAFFIC STUDY SUBAREA	LAND USE	TIME OF DAY	DATA SET *Trip Generation Manual, 11th Edition* (Unless noted Otherwise)	RATE OR EQUATION FROM: *Trip Generation Manual 11th Edition*	TOTAL TRIPS	TOTAL PRIMARY TRIPS	ENTERING %	ENTERING TOTAL TRIPS	EXITING %	EXITING TOTAL TRIPS
1	Multifamily Housing (Low-Rise) (ITE Code #220)	Daily	Weekday	T = 6.41(X) + 75.31	998	998	50%	499	50%	499
		AM Peak	Peak Hour of Adj. Street Traffic, One Hour between 7 & 9 AM	T=0.31(X)+22.85	67	67	24%	16	76%	51
	Ind. Variable (X) = 144 Dwelling Units	PM Peak	Peak Hour of Adj. Street Traffic, One Hour between 4 & 6 PM	T=0.43(X)+20.55	82	82	63%	52	37%	30
TOTALS		Daily			998	998		499		499
		AM Peak			67	67		16		51
		PM Peak			82	82		52		30

Winchester Pike Site Traffic Access Study - 10/2021

TABLE 2 - SITE TRIP GENERATION SUMMARY

Trip Generation for the site as outlined in the table below.

Land Use	Unit	Vehicle Type	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Warehousing (150)	939,200 SF	TOTAL	1,529	102	36	138	45	95	140
		Trucks	*515*	*10*	*9*	*19*	*15*	*14*	*29*
		Cars	*1,014*	*92*	*27*	*119*	*30*	*81*	*111*

Trip Distribution Pattern (Consistent with the *Canal Crossing Phase 2 Traffic Study*)

- Cars (10% to/from the West on Winchester Pike; 35% to/from the North on Brice Road; 40% to/from the East on Winchester Pike; and 15% to/from the west on US-33)
- Trucks (15% to/from the West on Winchester Pike and 85% to/from the East on Winchester Pike

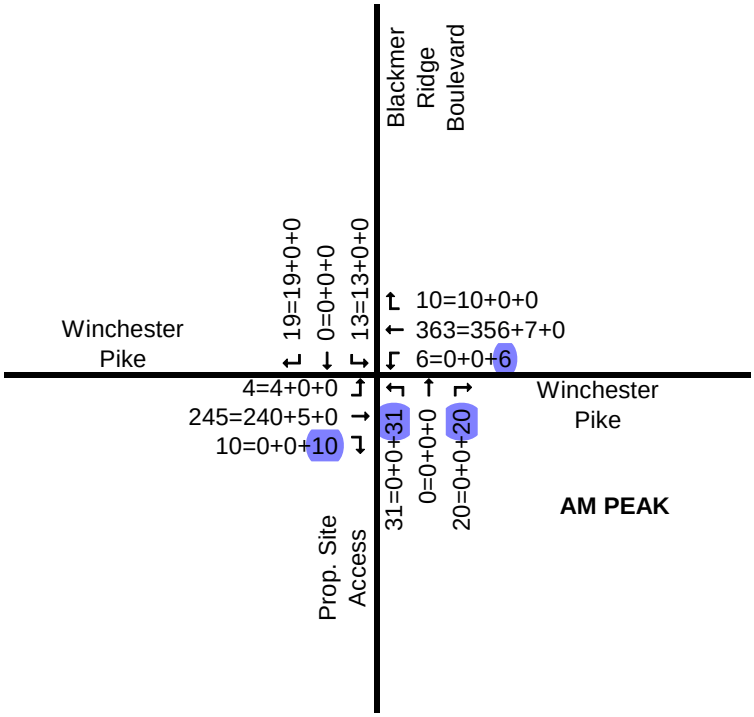
Table 1-Trip Generation Summary

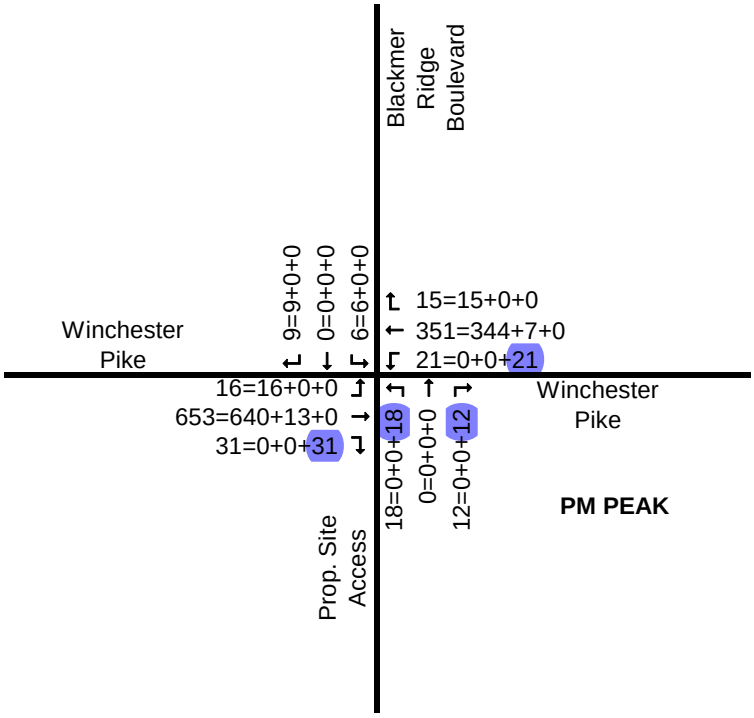
Land Use	Square Feet or Units	ITE Code	Time Period	ITE Formula	Total Trips	Trips Entering	Trips Exiting
Single Family - Detached	576 units	210	ADT	Ln(T)=0.92Ln(x)+2.71	5206	2603	2603
			AM Peak	T=0.71(x)+4.8	414	104	310
			PM Peak	Ln(T)=0.96Ln(x)+0.2	546	344	202
Multifamily Housing Low Rise	320 units	220	ADT	T=7.56(x) - 40.86	2,378	1,189	1,189
			AM Peak	Ln(T)=0.95Ln(x)-0.51	144	33	111
			PM Peak	Ln(T)=0.89Ln(x)-0.02	166	105	61
				ADT	***7,584***	***3,792***	***3,792***
				AM TOTAL	***558***	***137***	***421***
				PM TOTAL	***712***	***449***	***263***

Winchester Pike Distribution

(XX) XX
- XX: AM SITE TRIPS
- (XX): PM SITE TRIPS

AM and PM peak hour trips estimated at Gender Road and Winchester Pike intersection as well as Brice Road and Winchester Pike intersection.





LEGEND
A=B+C+D

A = 2022 'BUILD'
B = EXISTING (2021)
C = GROWTH
D = SITE TOTAL

WINCHESTER PIKE SITE TRAFFIC ACCESS STUDY

PREPARED BY: SMART SERVICES

10/2021

FIGURE 4

2022 'BUILD'

Canal Winchester Trip Generation & Distribution

Travis Hunt

From: Bill S. Hebble, P.E. <whebble@franklincountyengineer.org>
Sent: Thursday, October 7, 2021 5:00 PM
To: Kristen M. Mastalski, P.E.
Cc: Mike Andrako, P.E.
Subject: FW: Bixby Road Industrial Development - Traffic Study MOU Meeting Request
Attachments: Canal Winchester - Aerial.pdf

MORE Winchester Pike area development!!

Bill S. Hebble, P.E.
Assistant Mobility Engineer
970 Dublin Road
Columbus, Ohio 43215
614-525-4821
whebble@franklincountyengineer.org
www.franklincountyengineer.org

From: Morgan, Perry <Perry.Morgan@kimley-horn.com>
Sent: Thursday, October 07, 2021 4:58 PM
To: Lucas Haire <lhaire@canalwinchesterohio.gov>; Bill S. Hebble, P.E. <whebble@franklincountyengineer.org>; Andrew Moore <amoore@canalwinchesterohio.gov>
Cc: Wilson, Jessica <Jessica.Wilson@kimley-horn.com>; jmcgill@stotanindustrial.com; Muller, Justin <justin.muller@kimley-horn.com>
Subject: Bixby Road Industrial Development - Traffic Study MOU Meeting Request

We are preparing a traffic study for an industrial development north of Bixby Road and Southwest of Winchester Pike in the City of Canal Winchester.

A copy of the preliminary site plan is attached.

We would like to set-up a call to discuss the scope of the traffic study.

Please let us know your availability for next week (Tuesday thru Friday) for this call.

In advance of this call, we'd like to offer the following as an outline for the scope of this study.

- Use the traffic volumes from the *Canal Crossing Phase 2 Traffic Study*, August 2021 as No Build volumes.
- Add the proposed site volumes to the No Build volumes for Build volumes.
- Trip Generation for the site as outlined in the table below.

Land Use	Unit	Vehicle Type	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Warehousing (150)	939,200 SF	**TOTAL**	**1,529**	**102**	**36**	**138**	**45**	**95**	**140**
		Trucks	*515*	*10*	*9*	*19*	*15*	*14*	*29*
		Cars	*1,014*	*92*	*27*	*119*	*30*	*81*	*111*

- Trip Distribution Pattern (Consistent with the *Canal Crossing Phase 2 Traffic Study*)
    - Cars (10% to/from the West on Winchester Pike; 35% to/from the North on Brice Road; 40% to/from the East on Winchester Pike; and 15% to/from the west on US-33)
    - Trucks (15% to/from the West on Winchester Pike and 85% to/from the East on Winchester Pike

- Study Intersections
    - Bixby Road & Site Access Drive(s)
    - Bixby Road & Winchester Pike
    - Winchester Pike & Site Access(s)

- Scenarios
    - 2022 No Build
    - 2032 No Build
    - 2022 Build
    - 2032 Build

- Analysis
    - Capacity (Synchro 11)
    - Turn Lane Warrants (ODOT L&D, Section 400)

Again, please let us know your availability for next week (Tuesday thru Friday; October 12th to 15th).

If you have any questions, or need additional information, please let us know.

Thanks, and we look forward to meeting next week.

Perry.

Perry Morgan, P.E.
Kimley-Horn | 7965 N. High Street, Suite 200, Columbus, OH 43235
Direct: 614 472 8551 | Mobile: 614 582 7838 | www.kimley-horn.com

Provided Site Generated Trips for the following developments:

Turkey Hill, 650 Winchester Pike, Sheetz

A + B + C

AM

*Sheetz development includes Pass-By Trips

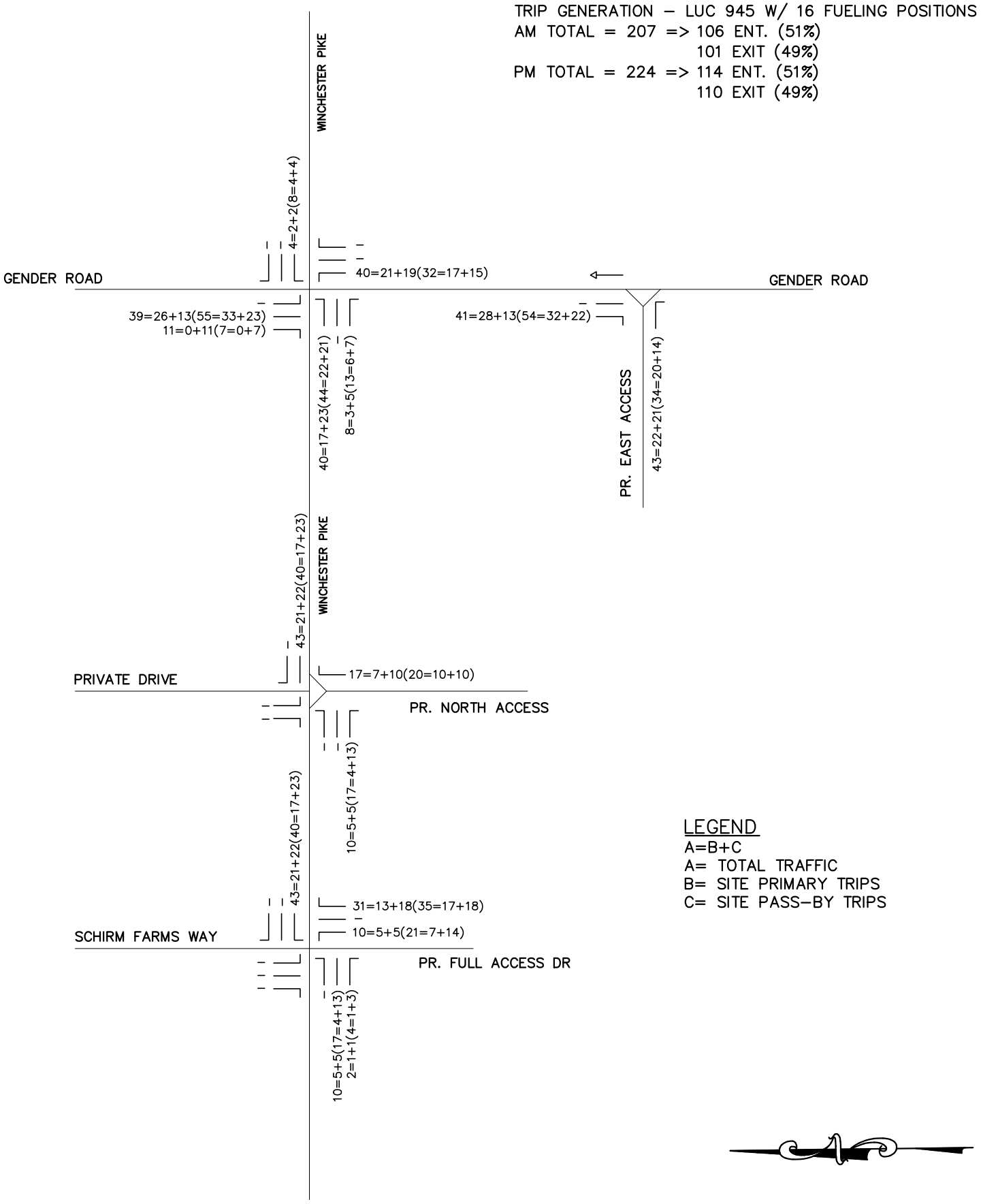
*All volumes provided by studies

A + B + C

PM

turkey hill site generated volumes

TRIP GENERATION – LUC 945 W/ 16 FUELING POSITIONS
AM TOTAL = 207 => 106 ENT. (51%)
101 EXIT (49%)
PM TOTAL = 224 => 114 ENT. (51%)
110 EXIT (49%)



LEGEND
A=B+C
A= TOTAL TRAFFIC
B= SITE PRIMARY TRIPS
C= SITE PASS-BY TRIPS

SCALE: NTS
DATE: AUGUST 7, 2020

SHEET 1 / X

CITY OF CANAL WINCHESTER, FAIRFIELD COUNTY, OHIO
TRAFFIC STUDY
FOR
GENDER ROAD & WINCHESTER PIKE SW
TRIP GENERATION - AM(PM)

PLAN PREPARED BY:
ADVANCED CIVIL DESIGN
ENGINEERS SURVEYORS
781 Science Blvd, Suite 100
Gahanna, Ohio 43230
ph 614.428.7750
fax 614.428.7755

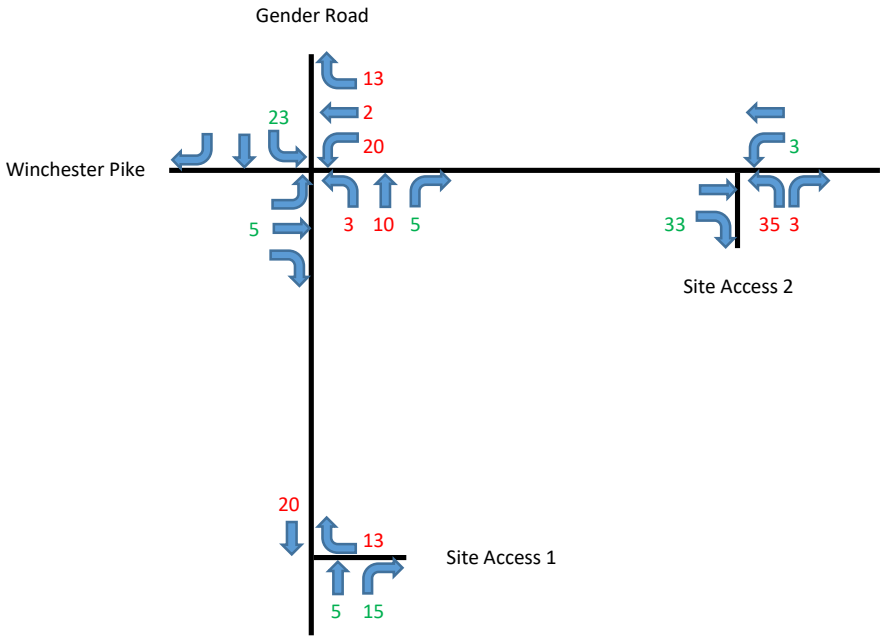
CARPENTER MARTY transportation	Year	Period	Scenario	Plate
		AM	Non-Pass-By Traffic	E1

^

N

Enter 51

Exit 51

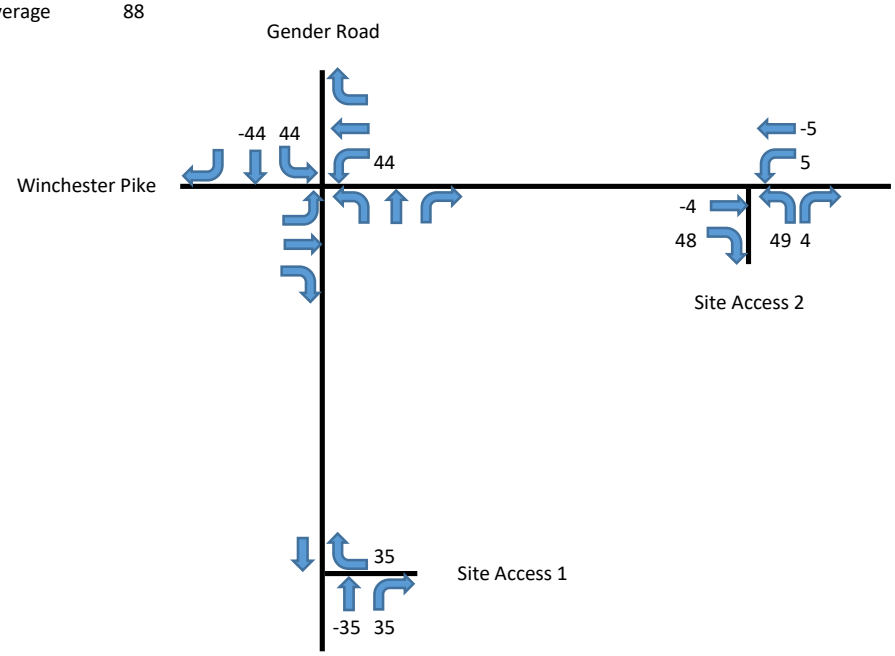


CARPENTER MARTY transportation	Year	Period	Scenario	Plate
		AM	Pass-By Traffic	F1

^

N

Enter	88
Exit	88
Average	88



	Year	Period	Scenario	Plate
CARPENTER MARTY transportation		PM	Non-Pass-By Traffic	E2

^

N

Enter 46

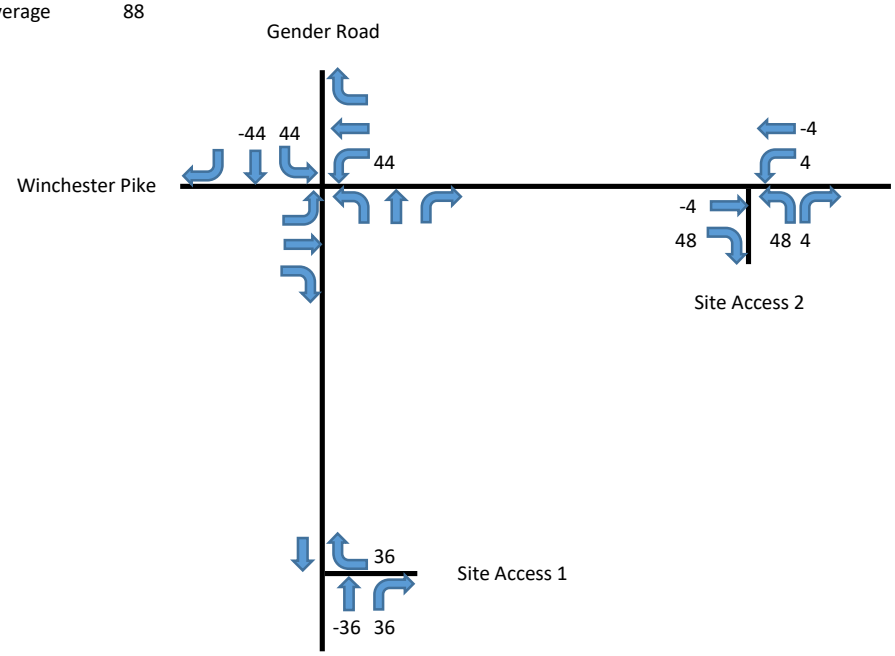
Exit 46

CARPENTER MARTY transportation	Year	Period	Scenario	Plate
		PM	Pass-By Traffic	F2

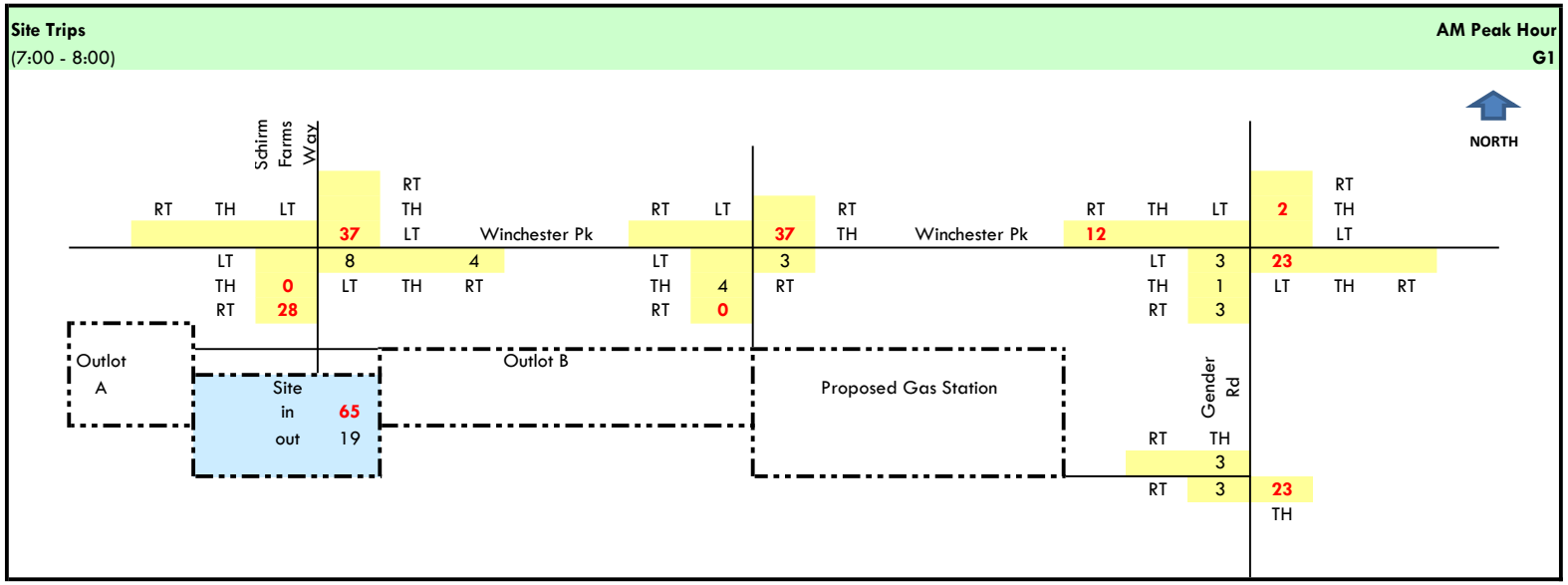
^

N

Enter	88
Exit	88
Average	88

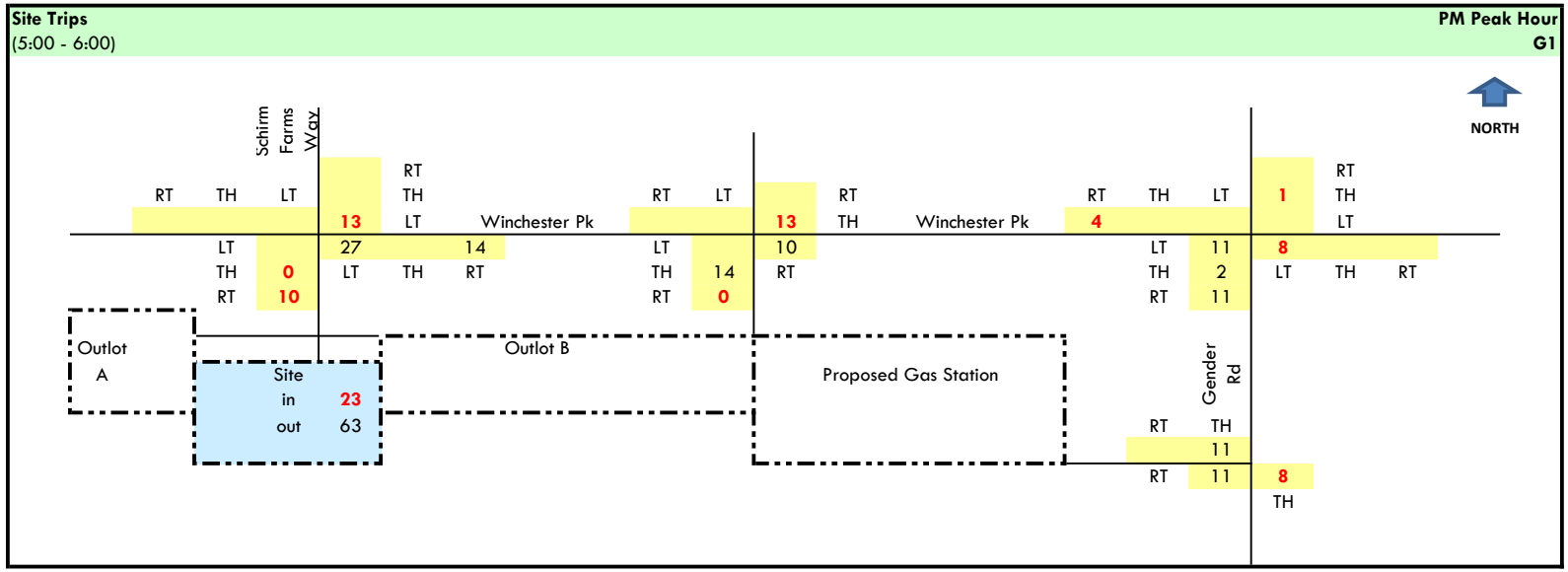


Gender Rd/Winchester Pike Site
Traffic Access Study
Traffic Volume Calculations



650 Winchester Pike - Warehouse Development Volumes

Gender Rd/Winchester Pike Site
Traffic Access Study
Traffic Volume Calculations



ITE Trip Generation Data

Land Use: 150
Warehousing

Description

A warehouse is primarily devoted to the storage of materials, but it may also include office and maintenance areas. High-cube transload and short-term storage warehouse (Land Use 154), high-cube fulfillment center warehouse (Land Use 155), high-cube parcel hub warehouse (Land Use 156), and high-cube cold storage warehouse (Land Use 157) are related uses.

Additional Data

Time-of-day distribution data for this land use are presented in Appendix A. For the 13 general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 11:30 a.m. and 12:30 p.m. and 3:00 and 4:00 p.m., respectively.

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in California, Connecticut, Minnesota, New Jersey, New York, Ohio, Oregon, Pennsylvania, and Texas.

Source Numbers

184, 331, 406, 411, 443, 579, 583, 596, 598, 611, 619, 642, 752, 869, 875, 876, 914, 940

Canal Crossing Phase 1 Development Trip Generation -AM Peak

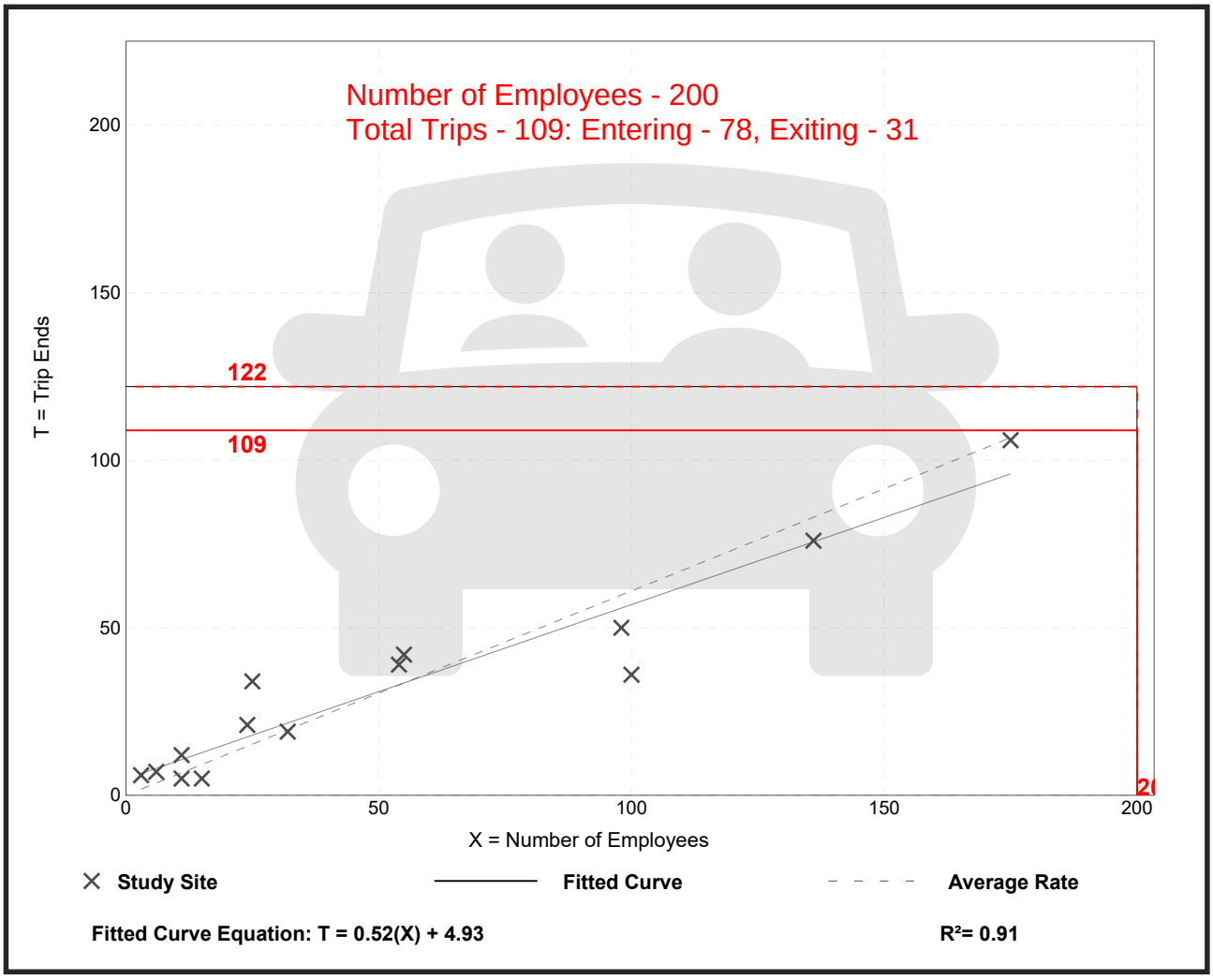
Warehousing
(150)

Vehicle Trip Ends vs: **Employees**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 14
Avg. Num. of Employees: 53
Directional Distribution: 72% entering, 28% exiting

Vehicle Trip Generation per Employee

Average Rate	Range of Rates	Standard Deviation
0.61	0.33 - 2.00	0.23

Data Plot and Equation



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Canal Crossing Phase 1 Development Trip Generation -PM Peak

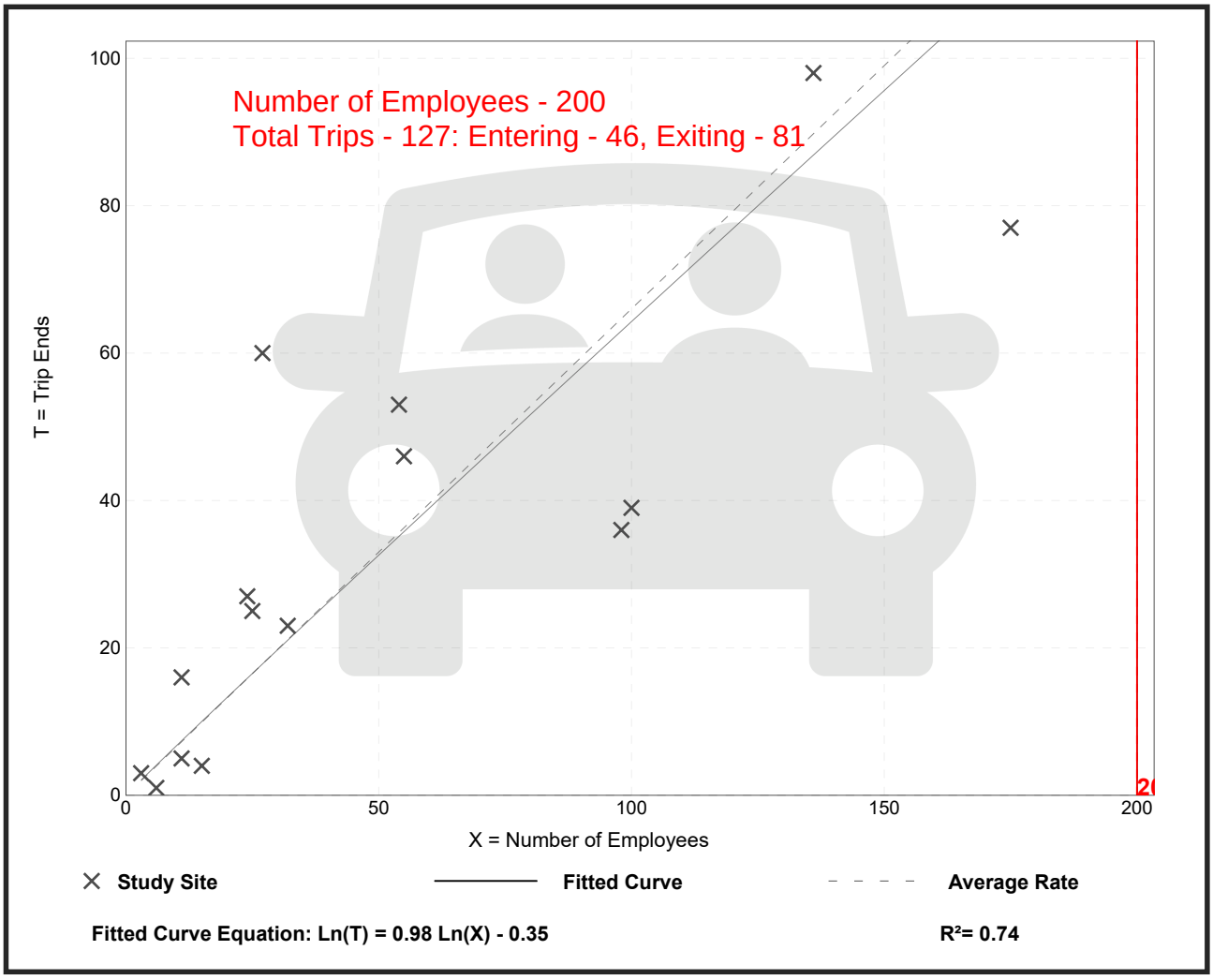
Warehousing
(150)

Vehicle Trip Ends vs: **Employees**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 15
Avg. Num. of Employees: 51
Directional Distribution: 36% entering, 64% exiting

Vehicle Trip Generation per Employee

Average Rate	Range of Rates	Standard Deviation
0.66	0.17 - 2.22	0.40

Data Plot and Equation



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Canal Crossing Phase 2 Development Trip Generation - AM Peak

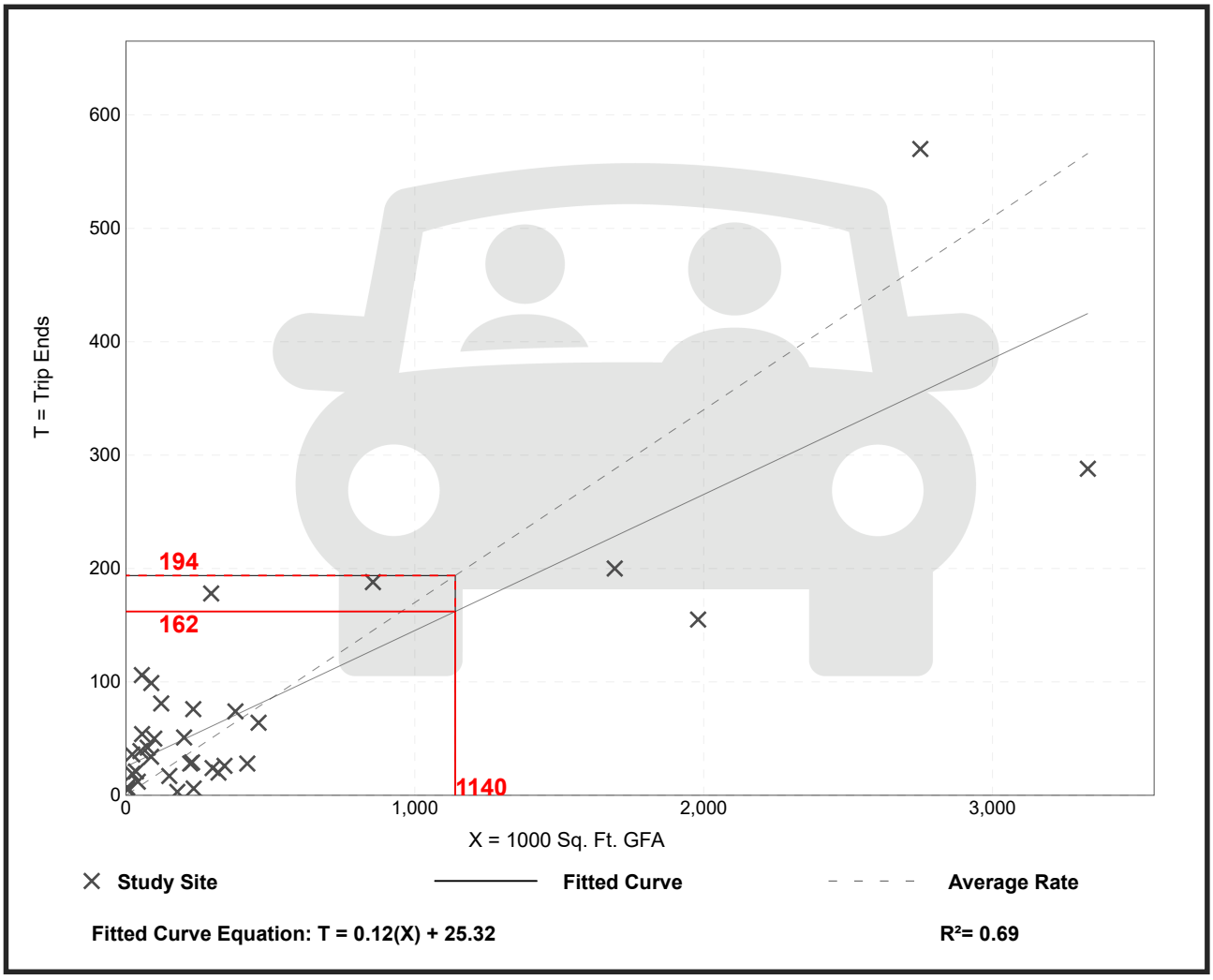
Warehousing
(150)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 34
Avg. 1000 Sq. Ft. GFA: 451
Directional Distribution: 77% entering, 23% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.17	0.02 - 1.93	0.20

Data Plot and Equation



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Canal Crossing Phase 2 Development Trip Generation - PM Peak

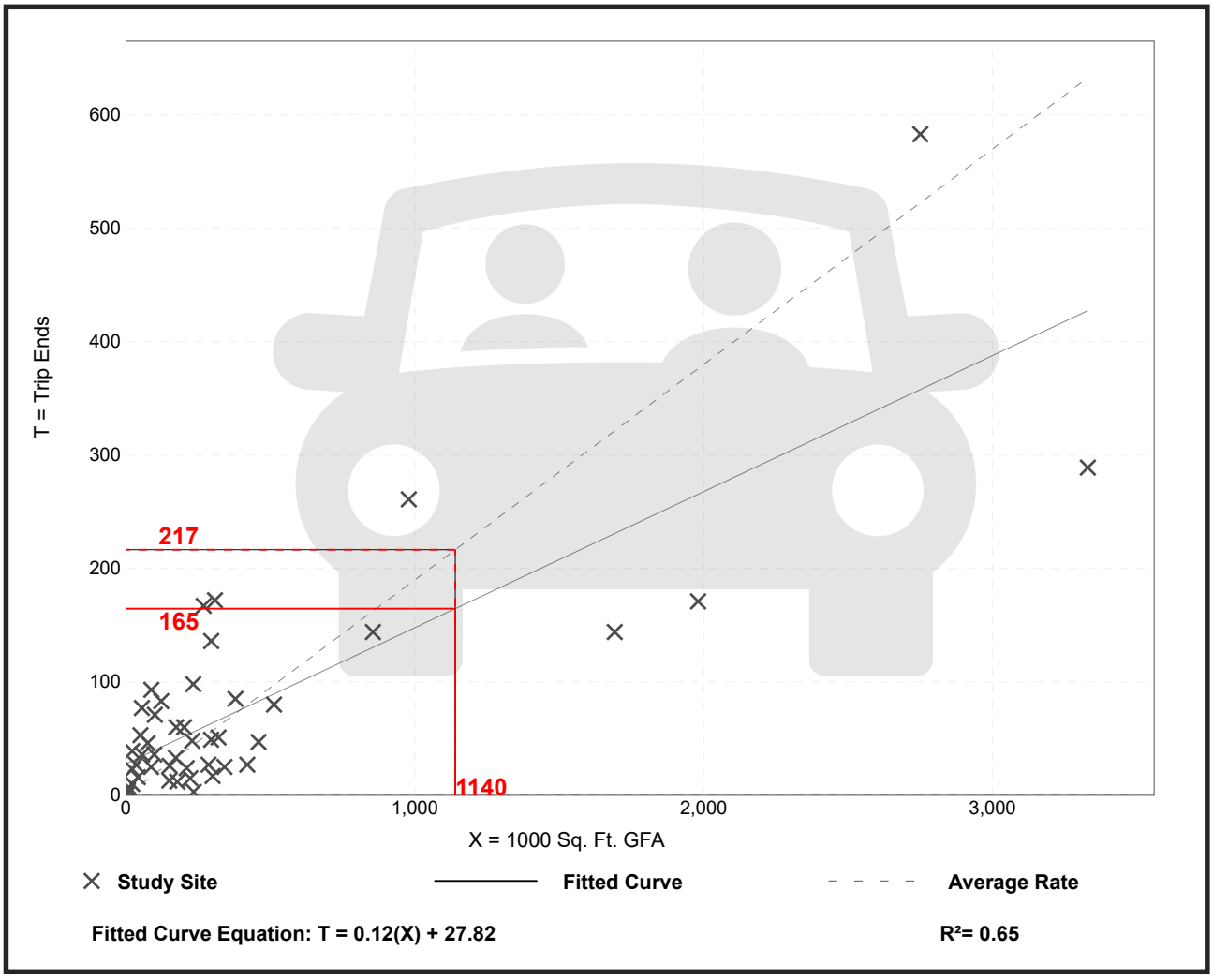
Warehousing
(150)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 47
Avg. 1000 Sq. Ft. GFA: 400
Directional Distribution: 27% entering, 73% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.19	0.01 - 1.80	0.18

Data Plot and Equation



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Total Traffic Volume Calculations

Traffic Volumes Calculations- Bixby Road@US 33

Counted Year	**2019**
Opening Year	**2022**
Design Year	**2032**

Note: The scenarios highlighted were used for analyses

AM - Bixby Road@US 33	(EB) Bixby Road			(WB) Bixby Road			(NB) US 33			(SB) US 33		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Counted Traffic Volumes (2019)	0	0	30	0	0	89	57	3522	1	17	1520	13
Growth Factor (2019 to 2022)	1.030	1.030	1.030	1.030	1.030	1.030	1.045	1.045	1.045	1.045	1.045	1.045
Background Traffic Volumes (2022)	0	0	31	0	0	92	60	3680	1	18	1588	14
Growth Factor (2019 to 2032)	1.130	1.130	1.130	1.130	1.130	1.130	1.195	1.195	1.195	1.195	1.195	1.195
Background Traffic Volumes (2032)	0	0	34	0	0	101	68	4209	1	20	1816	16
Additional Background Traffic Volumes	0	0	0	0	0	30	0	0	0	26	0	0
No-Build Traffic Volumes (2022)	0	0	31	0	0	122	60	3680	1	44	1588	14
No-Build Traffic Volumes (2032)	0	0	34	0	0	131	68	4209	1	46	1816	16
Canal Cossing Phase 2/Site-Generated Trips- Passenger Cars										16		
Canal Cossing Phase 2/Site-Generated Trips- Trucks												
Canal Cossing Phase 2/Site-Generated Total Trips- Passenger Cars & Trucks	0	0	0	0	0	0	0	0	0	16	0	0
Build Traffic Volumes (2022)	0	0	31	0	0	122	60	3680	1	60	1588	14
Build Traffic Volumes (2032)	0	0	34	0	0	131	68	4209	1	62	1816	16

PM - Bixby Road@US 33	(EB) Bixby Road			(WB) Bixby Road			(NB) US 33			(SB) US 33		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Counted Traffic Volumes (2019)	0	0	55	0	0	46	28	1800	12	114	3845	28
Growth Factor (2019 to 2022)	1.03	1.03	1.03	1.03	1.03	1.03	1.045	1.045	1.045	1.045	1.045	1.045
Background Traffic Volumes (2022)	0	0	57	0	0	47	29	1881	13	119	4018	29
Growth Factor (2019 to 2032)	1.130	1.130	1.130	1.130	1.130	1.130	1.195	1.195	1.195	1.195	1.195	1.195
Background Traffic Volumes (2032)	0	0	62	0	0	52	33	2151	14	136	4595	33
Additional Background Traffic Volumes	0	0	0	0	0	30	0	0	0	34	0	0
No-Build Traffic Volumes (2022)	0	0	57	0	0	77	29	1881	13	153	4018	29
No-Build Traffic Volumes (2032)	0	0	62	0	0	82	33	2151	14	170	4595	33
Canal Cossing Phase 2/Site-Generated Trips- Passenger Cars										5		
Canal Cossing Phase 2/Site-Generated Trips- Trucks												
Canal Cossing Phase 2/Site-Generated Total Trips- Passenger Cars & Trucks	0	0	0	0	0	0	0	0	0	5	0	0
Build Traffic Volumes (2022)	0	0	57	0	0	77	29	1881	13	158	4018	29
Build Traffic Volumes (2032)	0	0	62	0	0	82	33	2151	14	175	4595	33

Traffic Volumes Calculations- Bixby Road@Access B

Counted Year	**2019**
Opening Year	**2022**
Design Year	**2032**

Note: The scenarios highlighted were used for analyses

AM - Bixby Road@Access B	(EB) Bixby Road			(WB) Bixby Road			(NB) Access B			(SB) N/A		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Counted Traffic Volumes (2019)		18	0	0	89				0			
Growth Factor (2019 to 2022)		1.030	1.030	1.030	1.030				0			
Background Traffic Volumes (2022)		19	0	0	92				0			
Growth Factor (2019 to 2032)		1.130	1.130	1.130	1.130				0.000			
Background Traffic Volumes (2032)		20	0	0	101				0			
Additional Background Traffic Volumes		26	0	0	30							
No-Build Traffic Volumes (2022)		45	0	0	122				0			
No-Build Traffic Volumes (2032)		46	0	0	131				0			
Canal Cossing Phase 2/Site-Generated Trips- Passenger Cars			16	55					20			
Canal Cossing Phase 2/Site-Generated Trips- Trucks				12					4			
Canal Cossing Phase 2/Site-Generated Total Trips- Passenger Cars & Trucks		0	16	67	0				24			
Build Traffic Volumes (2022)		45	16	67	122				24			
Build Traffic Volumes (2032)		46	16	67	131				24			

PM - Bixby Road@Access B	(EB) Bixby Road			(WB) Bixby Road			(NB) Access B			(SB) N/A		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Counted Traffic Volumes (2019)		126	0	0	46				0			
Growth Factor (2019 to 2022)		1.03	1.03	1.03	1.03				0			
Background Traffic Volumes (2022)		130	0	0	47				0			
Growth Factor (2019 to 2032)		1.130	1.130	1.130	1.130				0.000			
Background Traffic Volumes (2032)		142	0	0	52				0			
Additional Background Traffic Volumes		34	0	0	30							
No-Build Traffic Volumes (2022)		164	0	0	77				0			
No-Build Traffic Volumes (2032)		176	0	0	82				0			
Canal Cossing Phase 2/Site-Generated Trips- Passenger Cars			5	19					67			
Canal Cossing Phase 2/Site-Generated Trips- Trucks				5					14			
Canal Cossing Phase 2/Site-Generated Total Trips- Passenger Cars & Trucks		0	5	24	0				81			
Build Traffic Volumes (2022)		164	5	24	77				81			
Build Traffic Volumes (2032)		176	5	24	82				81			

Traffic Volumes Calculations- Bixby Road@Access C

Counted Year	**2019**
Opening Year	**2022**
Design Year	**2032**

Note: The scenarios highlighted were used for analyses

AM - Bixby Road@Access C	(EB) Bixby Road			(WB) Bixby Road			(NB) Access C			(SB) N/A		
	LT	TH	RT	LT	TH	RT			RT	LT	TH	RT
Counted Traffic Volumes (2019)		18	0	0	89				0			
Growth Factor (2019 to 2022)		1.030	1.030	1.030	1.030				0			
Background Traffic Volumes (2022)		19	0	0	92				0			
Growth Factor (2019 to 2032)		1.130	1.130	1.130	1.130				0.000			
Background Traffic Volumes (2032)		20	0	0	101				0			
Additional Background Traffic Volumes		12	0	0	26				0			
No-Build Traffic Volumes (2022)		31	0	0	118				0			
No-Build Traffic Volumes (2032)		32	0	0	127				0			
Canal Cossing Phase 2/Site-Generated Trips- Passenger Cars		20		38	55				12			
Canal Cossing Phase 2/Site-Generated Trips- Trucks		4		4	12				1			
Canal Cossing Phase 2/Site-Generated Total Trips- Passenger Cars & Trucks		24	0	42	67				13			
Build Traffic Volumes (2022)		55	0	42	185				13			
Build Traffic Volumes (2032)		56	0	42	194				13			

PM - Bixby Road@Access C	(EB) Bixby Road			(WB) Bixby Road			(NB) Access C			(SB) N/A		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Counted Traffic Volumes (2019)		126	0	0	46				0			
Growth Factor (2019 to 2022)		1.03	1.03	1.03	1.03				0			
Background Traffic Volumes (2022)		130	0	0	47				0			
Growth Factor (2019 to 2032)		1.130	1.130	1.130	1.130				0.000			
Background Traffic Volumes (2032)		142	0	0	52				0			
Additional Background Traffic Volumes		29	0	0	18				0			
No-Build Traffic Volumes (2022)		159	0	0	65				0			
No-Build Traffic Volumes (2032)		171	0	0	70				0			
Canal Cossing Phase 2/Site-Generated Trips- Passenger Cars		67		13	19				36			
Canal Cossing Phase 2/Site-Generated Trips- Trucks		14		2	5				4			
Canal Cossing Phase 2/Site-Generated Total Trips- Passenger Cars & Trucks		81	0	15	24				40			
Build Traffic Volumes (2022)		240	0	15	89				40			
Build Traffic Volumes (2032)		252	0	15	94				40			

Traffic Volumes Calculations- Bixby Road@Rager Road

Counted Year	**2019**
Opening Year	**2022**
Design Year	**2032**

Note: The scenarios highlighted were used for analyses

AM - Bixby Road@Rager Road	(EB) Bixby Road			(WB) Bixby Road			(NB) Rager Road			(SB) N/A		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Counted Traffic Volumes (2019)		18	0	3	89		0		2			
Growth Factor (2019 to 2022)		1.030	1.030	1.027	1.027		1.09		1.09			
Background Traffic Volumes (2022)		19	0	3	91		0		2			
Growth Factor (2019 to 2032)		1.130	1.130	1.117	1.117		1.390		1.390			
Background Traffic Volumes (2032)		20	0	3	99		0		3			
Additional Background Traffic Volumes		12	0	0	26		0		0			
No-Build Traffic Volumes (2022)		31	0	3	117		0		2			
No-Build Traffic Volumes (2032)		32	0	3	125		0		3			
Canal Cossing Phase 2/Site-Generated Trips- Passenger Cars		30	2		87		6					
Canal Cossing Phase 2/Site-Generated Trips- Trucks		5			16							
Canal Cossing Phase 2/Site-Generated Total Trips- Passenger Cars & Trucks		35	2	0	103		6		0			
Build Traffic Volumes (2022)		66	2	3	220		6		2			
Build Traffic Volumes (2032)		67	2	3	228		6		3			

PM - Bixby Road@Rager Road	(EB) Bixby Road			(WB) Bixby Road			(NB) Rager Road			(SB) N/A		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Counted Traffic Volumes (2019)		126	0	3	44		2		7			
Growth Factor (2019 to 2022)		1.03	1.03	1.027	1.027		1.09		1.09			
Background Traffic Volumes (2022)		130	0	3	45		2		8			
Growth Factor (2019 to 2032)		1.130	1.130	1.117	1.117		1.390		1.390			
Background Traffic Volumes (2032)		142	0	3	49		3		10			
Additional Background Traffic Volumes		29	0	0	18		0		0			
No-Build Traffic Volumes (2022)		159	0	3	63		2		8			
No-Build Traffic Volumes (2032)		171	0	3	67		3		10			
Canal Cossing Phase 2/Site-Generated Trips- Passenger Cars		98	5		30		2					
Canal Cossing Phase 2/Site-Generated Trips- Trucks		18			7							
Canal Cossing Phase 2/Site-Generated Total Trips- Passenger Cars & Trucks		116	5	0	37		2		0			
Build Traffic Volumes (2022)		275	5	3	100		4		8			
Build Traffic Volumes (2032)		287	5	3	104		5		10			

Traffic Volumes Calculations- Bixby Road/Brice Road@Winchester Pike

Counted Year	**2019**
Opening Year	**2022**
Design Year	**2032**

Note: The scenarios highlighted were used for analyses

AM - Bixby Road/Brice Road@Winchester Pike	(EB) Winchester Pike			(WB) Winchester Pike			(NB) Bixby Road			(SB) Brice Road		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Counted Traffic Volumes (2019)	16	75	0	19	269	40	2	10	9	103	72	75
Growth Factor (2019 to 2022)	1.033	1.033	1.033	1.036	1.036	1.036	1.027	1.027	1.027	1.072	1.072	1.072
Background Traffic Volumes (2022)	17	77	0	20	279	41	2	10	9	110	77	80
Growth Factor (2019 to 2032)	1.143	1.143	1.143	1.156	1.156	1.156	1.117	1.117	1.117	1.312	1.312	1.312
Background Traffic Volumes (2032)	18	86	0	22	311	46	2	11	10	135	94	98
Additional Background Traffic Volumes	9	83	10	40	137	21	4	18	16	44	49	32
No-Build Traffic Volumes (2022)	26	160	10	60	416	62	6	28	25	154	126	112
No-Build Traffic Volumes (2032)	27	169	10	62	448	67	6	29	26	179	143	130
Canal Cossing Phase 2/Site-Generated Trips- Passenger Cars			11	38			8	11	11		38	
Canal Cossing Phase 2/Site-Generated Trips- Trucks			2	14			1		4			
Canal Cossing Phase 2/Site-Generated Total Trips- Passenger Cars & Trucks	0	0	13	52	0	0	9	11	15	0	38	0
Build Traffic Volumes (2022)	26	160	23	112	416	62	15	39	40	154	164	112
Build Traffic Volumes (2032)	27	169	23	114	448	67	15	40	41	179	181	130

PM - Bixby Road/Brice Road@Winchester Pike	(EB) Winchester Pike			(WB) Winchester Pike			(NB) Bixby Road			(SB) Brice Road		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Counted Traffic Volumes (2019)	92	513	0	12	200	141	2	66	56	150	38	41
Growth Factor (2019 to 2022)	1.033	1.033	1.033	1.036	1.036	1.036	1.027	1.027	1.027	1.072	1.072	1.072
Background Traffic Volumes (2022)	95	530	0	12	207	146	2	68	58	161	41	44
Growth Factor (2019 to 2032)	1.143	1.143	1.143	1.156	1.156	1.156	1.117	1.117	1.117	1.312	1.312	1.312
Background Traffic Volumes (2032)	105	586	0	14	231	163	2	74	63	197	50	54
Additional Background Traffic Volumes	28	108	5	24	144	49	11	51	43	31	30	11
No-Build Traffic Volumes (2022)	123	638	5	36	351	195	13	119	101	192	71	55
No-Build Traffic Volumes (2032)	133	694	5	38	375	212	13	125	106	228	80	65
Canal Cossing Phase 2/Site-Generated Trips- Passenger Cars			4	13			26	36	36		13	
Canal Cossing Phase 2/Site-Generated Trips- Trucks			1	6			3		15			
Canal Cossing Phase 2/Site-Generated Total Trips- Passenger Cars & Trucks	0	0	5	19	0	0	29	36	51	0	13	0
Build Traffic Volumes (2022)	123	638	10	55	351	195	42	155	152	192	84	55
Build Traffic Volumes (2032)	133	694	10	57	375	212	42	161	157	228	93	65

Traffic Volumes Calculations- Bixby Road@Access A

Counted Year	**2018**
Opening Year	**2022**
Design Year	**2032**

Note: The scenarios highlighted were used for analyses

AM - Winchester Pike @ Gender Road	(EB) Winchester Pike			(WB) Winchester Pike			(NB) Gender Road			(SB) Gender Road		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Counted Traffic Volumes (2018)	46	4	170	80	54	3	431	485	34	4	818	290
Growth Factor (2018 to 2022)	1.072	1.072	1.072	1.040	1.040	1.040	1.068	1.068	1.068	1.064	1.064	1.064
Background Traffic Volumes (2022)	49	4	182	83	56	3	460	518	36	4	870	309
Growth Factor (2018 to 2032)	1.252	1.252	1.252	1.140	1.140	1.140	1.238	1.238	1.238	1.224	1.224	1.224
Background Traffic Volumes (2032)	58	5	213	91	62	3	534	600	42	5	1001	355
Additional Background Traffic Volumes	43	6	119	68	4	13	173	10	5	67	-5	23
No-Build Traffic Volumes (2022)	92	10	301	151	60	16	633	528	41	71	865	332
No-Build Traffic Volumes (2032)	101	11	332	159	66	16	707	610	47	72	996	378
Canal Cossing Phase 2/Site-Generated Trips- Passenger Cars			11				38					
Canal Cossing Phase 2/Site-Generated Trips- Trucks			4				14					
Canal Cossing Phase 2/Site-Generated Total Trips- Passenger Cars & Trucks	0	0	15	0	0	0	52	0	0	0	0	0
Build Traffic Volumes (2022)	92	10	316	151	60	16	685	528	41	71	865	332
Build Traffic Volumes (2032)	101	11	347	159	66	16	759	610	47	72	996	378
PM - Winchester Pike @ Gender Road	**(EB) Bixby Road**			**(WB) Bixby Road**			**(NB) Access A**			**(SB) N/A**		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Counted Traffic Volumes (2018)	296	18	486	72	25	14	285	966	34	15	818	52
Growth Factor (2018 to 2022)	1.072	1.072	1.072	1.04	1.04	1.04	1.068	1.068	1.068	1.064	1.064	1.064
Background Traffic Volumes (2022)	317	19	521	75	26	15	304	1032	36	16	870	55
Growth Factor (2018 to 2032)	1.252	1.252	1.252	1.140	1.140	1.140	1.238	1.238	1.238	1.224	1.224	1.224
Background Traffic Volumes (2032)	371	23	608	82	29	16	353	1196	42	18	1001	64
Additional Background Traffic Volumes	55	6	152	70	3	12	168	9	4	65	11	11
No-Build Traffic Volumes (2022)	372	25	673	145	29	27	472	1041	40	81	881	66
No-Build Traffic Volumes (2032)	426	29	760	152	32	28	521	1205	46	83	1012	75
Canal Cossing Phase 2/Site-Generated Trips- Passenger Cars			36				13					
Canal Cossing Phase 2/Site-Generated Trips- Trucks			15				6					
Canal Cossing Phase 2/Site-Generated Total Trips- Passenger Cars & Trucks	0	0	51	0	0	0	19	0	0	0	0	0
Build Traffic Volumes (2022)	372	25	724	145	29	27	491	1041	40	81	881	66
Build Traffic Volumes (2032)	426	29	811	152	32	28	540	1205	46	83	1012	75

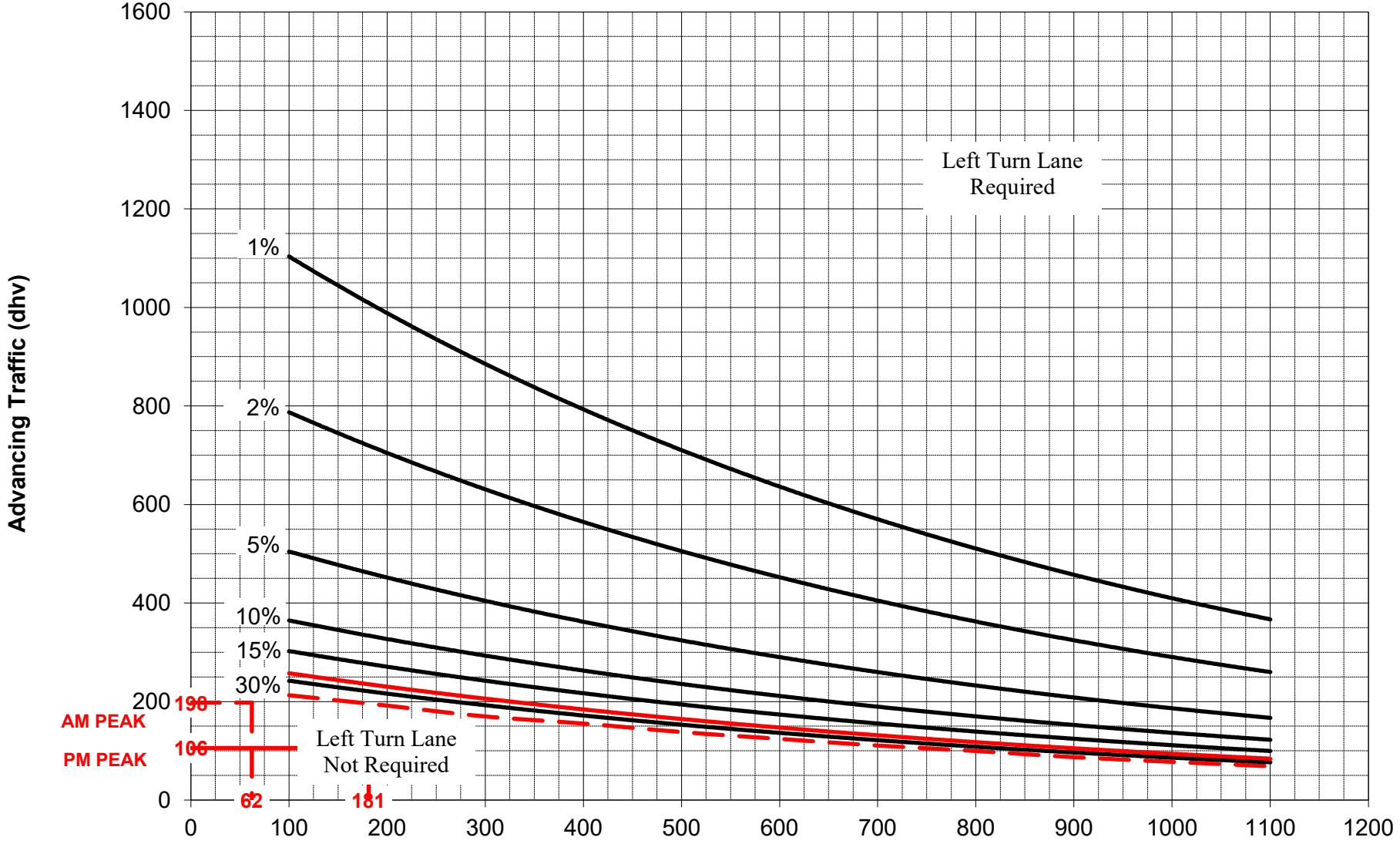
Turn Lane Warrant Charts

2-Lane Highway Left Turn Lane Warrant (>40MPH)

AM Peak: # Left Turns = 67; % Left Turns = 34%; NOT WARRANTED

PM Peak: # Left Turns = 24; % Left Turns = 23%; NOT WARRANTED

Volumes Analyzed: 2032 Build
Canal Crossing Phase 2 TIS
Bixby Road@Access B- Westbound



2-Lane Highway Left Turn Lane Warrant (>40MPH)

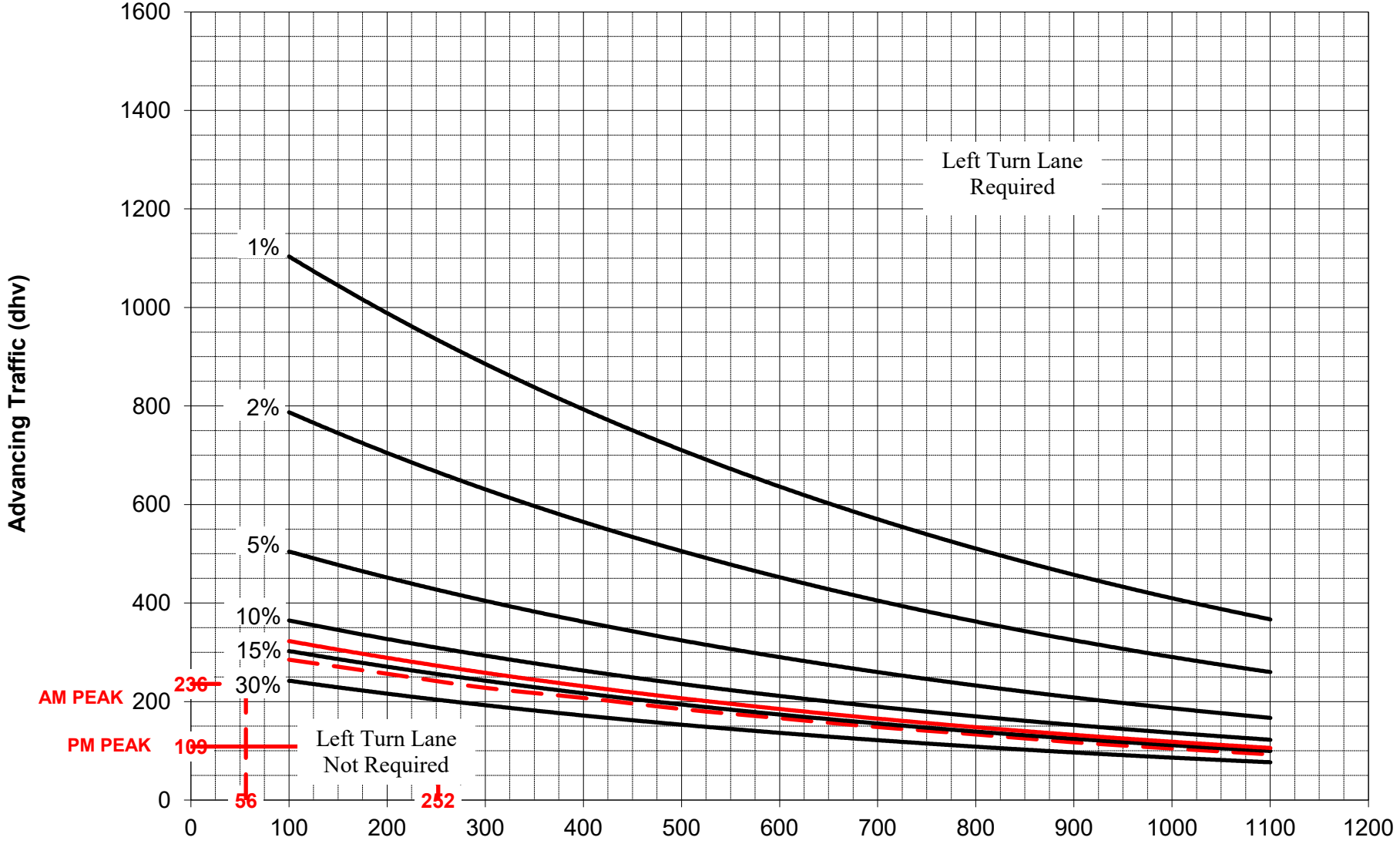
AM Peak: # Left Turns = 42; % Left Turns = 18%; NOT WARRANTED

PM Peak: # Left Turns = 15; % Left Turns = 14%; NOT WARRANTED

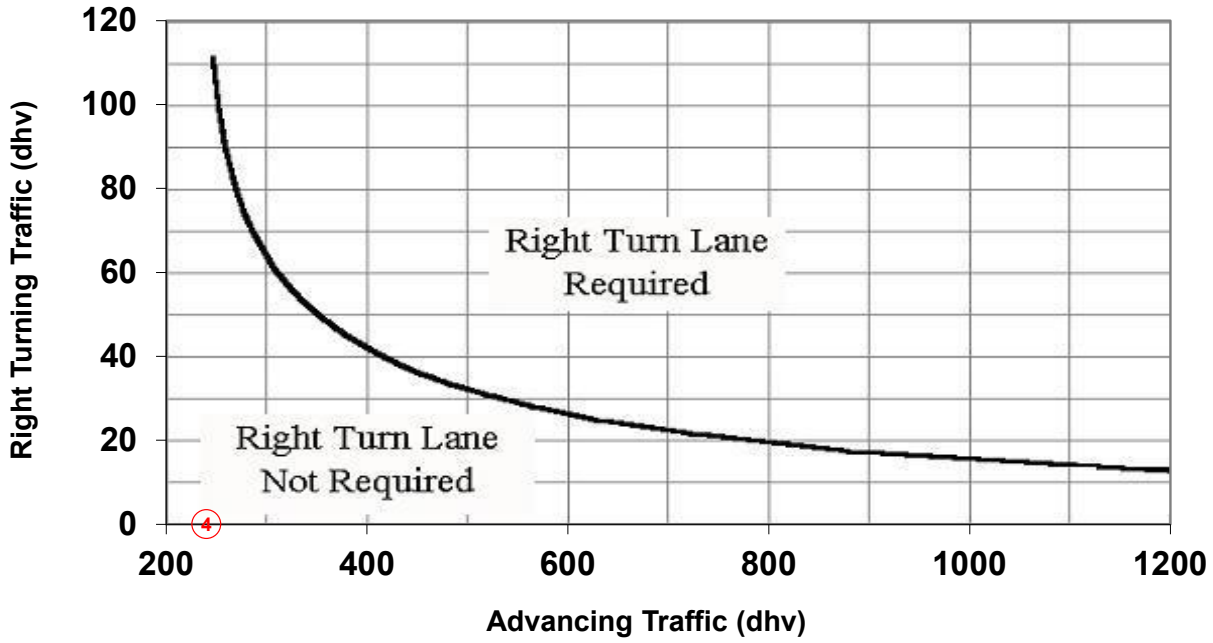
Volumes Analyzed: 2032 Build

Canal Crossing Phase 2 TIS

Bixby Road@Access C- Westbound

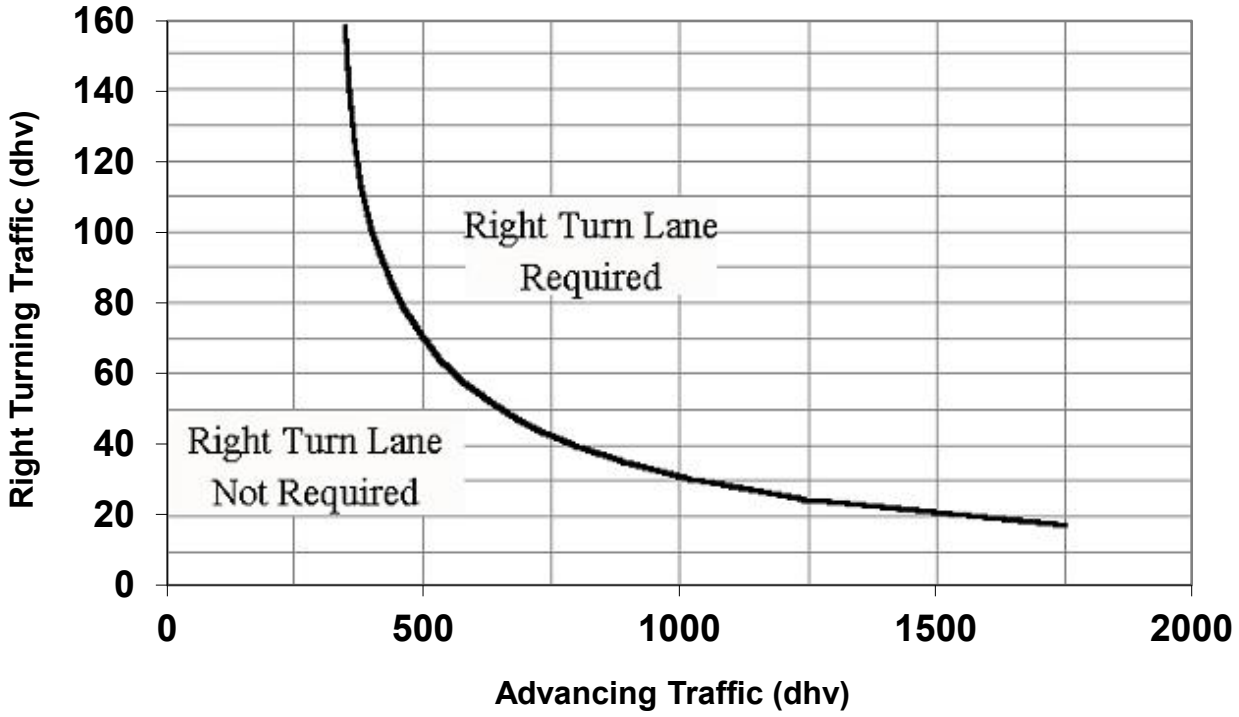


2-Lane Highway Right Turn Lane Warrant
> 40 mph or 70 kph Posted Speed



REQ	Intersection	Advancing Traffic Volume	Right Turning Traffic	Result
1	Eastbound-Bixby Road@Access B - 2032 AM Peak Build	61	16	NO
2	Eastbound-Bixby Road@Access B - 2032 PM Peak Build	169	5	NO
3	Eastbound-Bixby Road@Access C - 2032 AM Peak Build	55	0	NO
4	Eastbound-Bixby Road@Access C - 2032 PM Peak Build	240	0	NO
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

4 Lane Highway Right Turn Lane Warrant
(>40 mph or 70 kph Posted Speed)



REQ	Intersection	Advancing Traffic Volume	Right Turning Traffic	Result
1	US-33 @ Bixby Road_2032 AM Peak - NBRT-No Build	4210	1	NO
2	US-33 @ Bixby Road_2032 PM Peak - NBRT-No Build	2165	14	NO
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

BASIS FOR COMPUTING LENGTH OF TURN LANES

401-9

REFERENCE SECTIONS
401.6.1, 401.6.3

Type of Traffic Control	Design Speed		
	30-35	40-65	
	Turn Demand Volume		
	All	Low*	High
Signalized	A	** B or C	** B or C
Unsignalized Stopped Crossroad	A	A	A
Unsignalized Through Road	A	B	** B or C

*Low is considered 10% or less of approach traffic volume
**Whichever is greater

CONDITION A	STORAGE ONLY
Length = 50' (diverging taper) + Storage Length (Figure 401-10)	

CONDITION B	HIGH SPEED DECELERATION ONLY
Design Speed	Length (including 50' Diverging Taper)
40	125
45	175
50	225
55	285
60	345
65	405

CONDITION C	MODERATE SPEED DECELERATION AND STORAGE
Design Speed	Length (including 50' Diverging Taper)
40	115 + Storage Length (Figure 401-10)
45	125 "
50	145 "
55	165 "
60	185 "
65	205 "

For explanation, see Turn Lane Design Example

STORAGE LENGTH AT INTERSECTIONS

401-10

REFERENCE SECTIONS 401.6.1, 401.6.3

* AVERAGE NO. OF VEHICLES/CYCLE	REQUIRED LENGTH (FT.)	* AVERAGE NO. OF VEHICLES/CYCLE	REQUIRED LENGTH (FT.)
1	50	17	600
2	100	18	625
3	150	19	650
4	175	20	675
5	200	21	725
6	250	22	750
7	275	23	775
8	325	24	800
9	350	25	825
10	375	30	975
11	400	35	1125
12	450	40	1250
13	475	45	1400
14	500	50	1550
15	525	55	1700
16	550	60	1850

$$\text{* AVERAGE VEHICLES PER CYCLE} = \frac{\text{DHV (TURNING LANE)}}{\text{CYCLES/HOUR}}$$

IF CYCLES ARE UNKNOWN ASSUME:

UNSIGNALIZED OR 2 PHASE = 60 CYCLES/HOUR

3 PHASE = 40 CYCLES/HOUR

4 PHASE = 30 CYCLES/HOUR

Capacity Analyses Reports

LOCATION: Winchester Pike & Bixby-Brice

DATE: 11-19-20 **LOCATION**: sig#4940 (2019-21)

TYPE OF CONTROLLER: **RECORDED BY**: WJB

*****Winchester Pike is designated as the N-S direction*****

Phase:	1	2	3	4	5	6	7	8	NOTES
MOVEMENT:	NB LT	SB	EB LT	WB	SB LT	NB	WB LT	EB	
MIN GREEN	5	15	5	8	5	15	5	8	
VEH EXT (Initial Gap)	3.0	8.0	3.0	6.0	3.0	8.0	3.0	6.0	
MAX 1 (Free-Op)	20	40	20	40	20	40	25	50	
VEH CLEAR	3.0	5.1	3.0	4.7	3.0	5.1	3.0	4.7	
RED CLEAR	0.5	1.0	0.5	1.0	0.5	1.0	0.5	1.0	
Time Before Reduction	5	10	5	6	5	10	5	6	
Time to Reduce	10	15	10	8	10	15	10	8	
Min Gap	1.0	3.0	1.0	3.0	1.0	3.0	1.0	3.0	
WALK	-	7	-	7	-	7	-	7	
FDW	-	20	-	23	-	20	-	23	
RECALL	-	Min	-	-	-	Min	-	-	
MEMORY	NL	NL	NL	NL	NL	NL	NL	NL	

DETECTORS

Det #	Loop #	Ph	Lane	Dist. from S.B. / Size	AMP x CH	Mode / Delay	Ext.
1	1	1	NB Lt	50'/ 6x20	1 x 1	5 sec	
2	2	6	NB Th Near	150'/ 6x6	1 x 2		
3	3	6	NB Th Far	400'/ 6x6	1 x 3		
4	4	4	WB Th (S.B.)	0'/ 6x20	1 x 4	Call	0.1
5	5	5	SB Lt	50'/ 6x20	2 x 1	5 sec	
6	6	2	SB Th Near	150'/ 6x6	2 x 2		
7	7	2	SB Th Far	400'/ 6x6	2 x 3		
8	9	8	EB Th (S.B.)	0'/ 6x20	2 x 4	Call	0.1
9	10	3	EB Lt	50'/ 6x20	3 x 1	5 sec	
10	8	8	EB Lt (S.B.)	0'/ 6x20	3 x 2	Call	0.1
11	11	8	EB Th Near	100'/ 6x6	3 x 3		
12	12	8	EB Th Far	350'/ 6x6	3 x 4		

Det #	Loop #	Ph	Lane	Dist. from S.B. / Size	AMP x CH	Mode / Delay	Ext.
13	13	7	WB Lt	50'/ 6x20	4 x 1	5 sec	
14	14	4	WB Lt (S.B.)	0'/ 6x20	4 x 2	Call	0.1
15	16	4	WB Th Near	100'/ 6x6	4 x 3		
16	17	4	WB Th Far	350'/ 6x6	4 x 4		

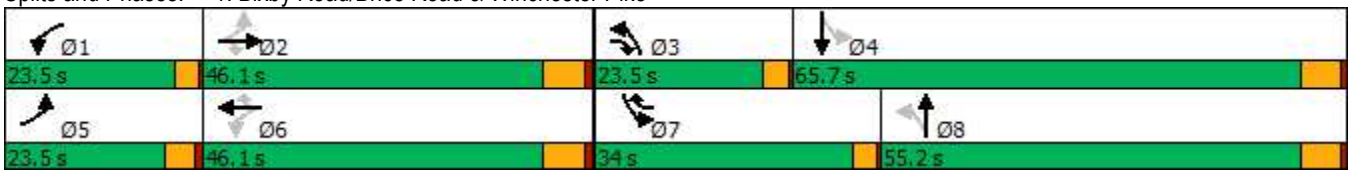
All Detectors in Presence Mode
Set Detector Delay & Extension times on controller
Y+AR interval begins at the end of the FDW
Simultaneous Gap: Off

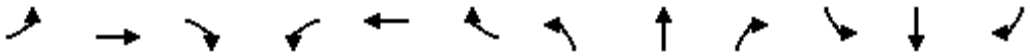
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	160	10	60	416	62	6	28	25	154	126	112
Future Volume (vph)	26	160	10	60	416	62	6	28	25	154	126	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	320		190	535		170	300		0	350		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		3574			2727			2276			1993	
Travel Time (s)		81.2			62.0			51.7			45.3	
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	3	1	6	7	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	15.0	5.0	5.0	15.0	5.0	5.0	8.0		5.0	8.0	
Minimum Split (s)	9.5	33.1	9.5	9.5	33.1	9.5	9.5	35.7		9.5	35.7	
Total Split (s)	23.5	46.1	23.5	23.5	46.1	34.0	23.5	55.2		34.0	65.7	
Total Split (%)	14.8%	29.0%	14.8%	14.8%	29.0%	21.4%	14.8%	34.8%		21.4%	41.4%	
Yellow Time (s)	3.5	5.1	3.0	3.0	5.1	3.0	3.0	4.7		3.0	4.7	
All-Red Time (s)	1.0	1.0	0.5	0.5	1.0	0.5	0.5	1.0		0.5	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	6.1	3.5	3.5	6.1	3.5	3.5	5.7		3.5	5.7	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes		Yes			Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None	None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 158.8
Actuated Cycle Length: 71.1
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Bixby Road/Brice Road & Winchester Pike





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	160	10	60	416	62	6	28	25	154	126	112
Future Volume (veh/h)	26	160	10	60	416	62	6	28	25	154	126	112
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	27	167	10	62	433	65	6	29	26	160	131	117
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	364	726	628	611	739	791	253	126	113	452	213	190
Arrive On Green	0.03	0.39	0.39	0.05	0.40	0.40	0.01	0.14	0.14	0.10	0.24	0.24
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	902	808	1767	903	807
Grp Volume(v), veh/h	27	167	10	62	433	65	6	0	55	160	0	248
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	0	1710	1767	0	1710
Q Serve(g_s), s	0.5	3.6	0.2	1.2	11.1	1.3	0.2	0.0	1.7	4.3	0.0	7.8
Cycle Q Clear(g_c), s	0.5	3.6	0.2	1.2	11.1	1.3	0.2	0.0	1.7	4.3	0.0	7.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.47	1.00		0.47
Lane Grp Cap(c), veh/h	364	726	628	611	739	791	253	0	238	452	0	404
V/C Ratio(X)	0.07	0.23	0.02	0.10	0.59	0.08	0.02	0.00	0.23	0.35	0.00	0.61
Avail Cap(c_a), veh/h	867	1228	1053	1101	1228	1205	824	0	1401	1160	0	1698
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.2	12.3	11.0	9.8	14.3	7.8	22.1	0.0	23.1	17.5	0.0	20.6
Incr Delay (d2), s/veh	0.1	0.7	0.0	0.1	3.4	0.2	0.0	0.0	1.8	0.5	0.0	5.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.5	0.1	0.4	4.8	0.4	0.1	0.0	0.8	1.7	0.0	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.3	13.0	11.0	9.8	17.7	8.0	22.1	0.0	24.9	18.0	0.0	26.1
LnGrp LOS	B	B	B	A	B	A	C	A	C	B	A	C
Approach Vol, veh/h		204			560			61			408	
Approach Delay, s/veh		12.7			15.7			24.6			22.9	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.7	29.8	4.0	20.0	6.3	30.2	9.8	14.1
Change Period (Y+Rc), s	3.5	6.1	3.5	5.7	4.5	6.1	3.5	5.7
Max Green Setting (Gmax), s	20.0	40.0	20.0	60.0	19.0	40.0	30.5	49.5
Max Q Clear Time (g_c+I1), s	3.2	5.6	2.2	9.8	2.5	13.1	6.3	3.7
Green Ext Time (p_c), s	0.1	3.9	0.0	4.4	0.0	11.0	0.4	0.7

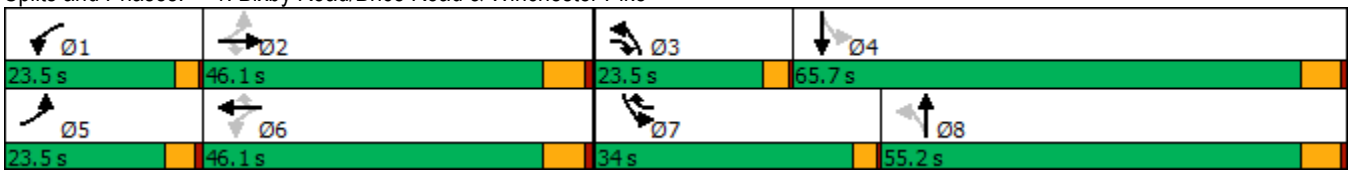
Intersection Summary	
HCM 6th Ctrl Delay	18.0
HCM 6th LOS	B

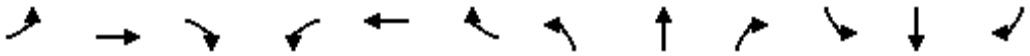
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	160	23	112	416	62	15	39	40	154	164	112
Future Volume (vph)	26	160	23	112	416	62	15	39	40	154	164	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	320		190	535		170	300		0	350		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		3574			2727			2276			1993	
Travel Time (s)		81.2			62.0			51.7			45.3	
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	3	1	6	7	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	15.0	5.0	5.0	15.0	5.0	5.0	8.0		5.0	8.0	
Minimum Split (s)	9.5	33.1	9.5	9.5	33.1	9.5	9.5	35.7		9.5	35.7	
Total Split (s)	23.5	46.1	23.5	23.5	46.1	34.0	23.5	55.2		34.0	65.7	
Total Split (%)	14.8%	29.0%	14.8%	14.8%	29.0%	21.4%	14.8%	34.8%		21.4%	41.4%	
Yellow Time (s)	3.5	5.1	3.0	3.0	5.1	3.0	3.0	4.7		3.0	4.7	
All-Red Time (s)	1.0	1.0	0.5	0.5	1.0	0.5	0.5	1.0		0.5	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	6.1	3.5	3.5	6.1	3.5	3.5	5.7		3.5	5.7	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes		Yes			Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None	None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 158.8
Actuated Cycle Length: 80.4
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Bixby Road/Brice Road & Winchester Pike





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	160	23	112	416	62	15	39	40	154	164	112
Future Volume (veh/h)	26	160	23	112	416	62	15	39	40	154	164	112
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	27	167	24	117	433	65	16	41	42	160	171	117
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	340	672	600	585	714	763	267	150	154	467	267	182
Arrive On Green	0.03	0.36	0.36	0.07	0.38	0.38	0.02	0.18	0.18	0.10	0.26	0.26
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	840	861	1767	1027	702
Grp Volume(v), veh/h	27	167	24	117	433	65	16	0	83	160	0	288
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	0	1701	1767	0	1729
Q Serve(g_s), s	0.6	4.1	0.6	2.6	12.1	1.4	0.5	0.0	2.7	4.4	0.0	9.6
Cycle Q Clear(g_c), s	0.6	4.1	0.6	2.6	12.1	1.4	0.5	0.0	2.7	4.4	0.0	9.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.51	1.00		0.41
Lane Grp Cap(c), veh/h	340	672	600	585	714	763	267	0	304	467	0	449
V/C Ratio(X)	0.08	0.25	0.04	0.20	0.61	0.09	0.06	0.00	0.27	0.34	0.00	0.64
Avail Cap(c_a), veh/h	808	1149	1004	1012	1149	1131	780	0	1303	1124	0	1606
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.0	14.4	12.6	11.4	15.9	8.9	21.1	0.0	22.9	17.1	0.0	21.2
Incr Delay (d2), s/veh	0.1	0.9	0.1	0.2	3.8	0.2	0.1	0.0	1.7	0.4	0.0	5.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.7	0.2	0.9	5.4	0.5	0.2	0.0	1.2	1.7	0.0	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.1	15.3	12.7	11.5	19.8	9.2	21.2	0.0	24.6	17.5	0.0	26.7
LnGrp LOS	B	B	B	B	B	A	C	A	C	B	A	C
Approach Vol, veh/h		218			615			99			448	
Approach Delay, s/veh		14.8			17.1			24.1			23.4	
Approach LOS		B			B			C			C	

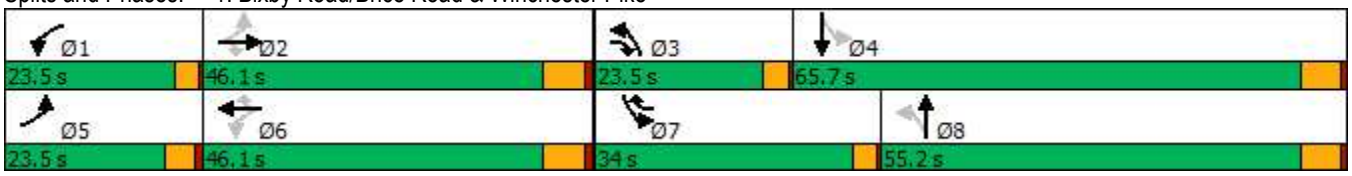
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	29.5	4.7	22.5	6.4	31.0	10.0	17.3
Change Period (Y+Rc), s	3.5	6.1	3.5	5.7	4.5	6.1	3.5	5.7
Max Green Setting (Gmax), s	20.0	40.0	20.0	60.0	19.0	40.0	30.5	49.5
Max Q Clear Time (g_c+I1), s	4.6	6.1	2.5	11.6	2.6	14.1	6.4	4.7
Green Ext Time (p_c), s	0.2	4.1	0.0	5.2	0.0	10.8	0.4	1.2

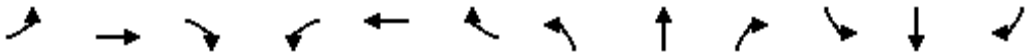
Intersection Summary	
HCM 6th Ctrl Delay	19.3
HCM 6th LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	123	638	5	36	351	195	13	119	192	71
Future Volume (vph)	123	638	5	36	351	195	13	119	192	71
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+pt	NA
Protected Phases	5	2	3	1	6	7	3	8	7	4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	3	1	6	7	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	5.0	5.0	15.0	5.0	5.0	8.0	5.0	8.0
Minimum Split (s)	9.5	33.1	9.5	9.5	33.1	9.5	9.5	35.7	9.5	35.7
Total Split (s)	23.5	46.1	23.5	23.5	46.1	34.0	23.5	55.2	34.0	65.7
Total Split (%)	14.8%	29.0%	14.8%	14.8%	29.0%	21.4%	14.8%	34.8%	21.4%	41.4%
Yellow Time (s)	3.5	5.1	3.0	3.0	5.1	3.0	3.0	4.7	3.0	4.7
All-Red Time (s)	1.0	1.0	0.5	0.5	1.0	0.5	0.5	1.0	0.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.1	3.5	3.5	6.1	3.5	3.5	5.7	3.5	5.7
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes		Yes			Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	None	Min	None	None	None	None	None

Intersection Summary
Cycle Length: 158.8
Actuated Cycle Length: 104.6
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Bixby Road/Brice Road & Winchester Pike





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	123	638	5	36	351	195	13	119	101	192	71	55
Future Volume (veh/h)	123	638	5	36	351	195	13	119	101	192	71	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	135	701	5	40	386	214	14	131	111	211	78	60
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	387	805	708	211	726	800	358	185	157	367	293	225
Arrive On Green	0.07	0.43	0.43	0.04	0.39	0.39	0.02	0.20	0.20	0.12	0.30	0.30
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	928	786	1767	973	748
Grp Volume(v), veh/h	135	701	5	40	386	214	14	0	242	211	0	138
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	0	1714	1767	0	1721
Q Serve(g_s), s	3.8	30.3	0.2	1.2	14.1	6.8	0.6	0.0	11.6	7.9	0.0	5.4
Cycle Q Clear(g_c), s	3.8	30.3	0.2	1.2	14.1	6.8	0.6	0.0	11.6	7.9	0.0	5.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.46	1.00		0.43
Lane Grp Cap(c), veh/h	387	805	708	211	726	800	358	0	342	367	0	518
V/C Ratio(X)	0.35	0.87	0.01	0.19	0.53	0.27	0.04	0.00	0.71	0.58	0.00	0.27
Avail Cap(c_a), veh/h	651	842	740	549	842	899	730	0	963	770	0	1172
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.9	22.7	13.4	19.0	20.6	12.3	27.3	0.0	32.9	23.1	0.0	23.4
Incr Delay (d2), s/veh	0.5	12.4	0.0	0.4	2.8	0.8	0.0	0.0	9.4	1.4	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	15.1	0.1	0.5	6.4	2.4	0.2	0.0	5.6	3.3	0.0	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.4	35.1	13.4	19.5	23.4	13.1	27.3	0.0	42.2	24.5	0.0	24.4
LnGrp LOS	B	D	B	B	C	B	C	A	D	C	A	C
Approach Vol, veh/h		841			640			256			349	
Approach Delay, s/veh		31.8			19.7			41.4			24.5	
Approach LOS		C			B			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.6	44.3	5.0	32.2	10.4	40.6	13.9	23.3
Change Period (Y+Rc), s	3.5	6.1	3.5	5.7	4.5	6.1	3.5	5.7
Max Green Setting (Gmax), s	20.0	40.0	20.0	60.0	19.0	40.0	30.5	49.5
Max Q Clear Time (g_c+I1), s	3.2	32.3	2.6	7.4	5.8	16.1	9.9	13.6
Green Ext Time (p_c), s	0.1	5.9	0.0	2.3	0.3	11.5	0.6	4.0

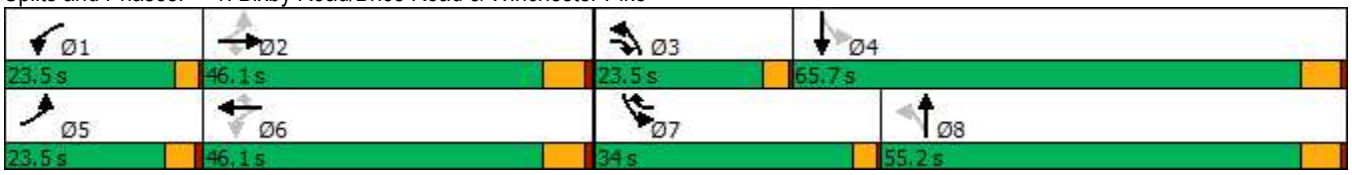
Intersection Summary	
HCM 6th Ctrl Delay	28.1
HCM 6th LOS	C

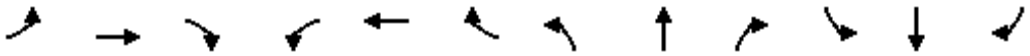
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	530	10	55	207	146	42	133	152	161	71	44
Future Volume (vph)	95	530	10	55	207	146	42	133	152	161	71	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	320		190	535		170	300		0	350		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		3574			2727			2276			1993	
Travel Time (s)		81.2			62.0			51.7			45.3	
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	3	1	6	7	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	15.0	5.0	5.0	15.0	5.0	5.0	8.0		5.0	8.0	
Minimum Split (s)	9.5	33.1	9.5	9.5	33.1	9.5	9.5	35.7		9.5	35.7	
Total Split (s)	23.5	46.1	23.5	23.5	46.1	34.0	23.5	55.2		34.0	65.7	
Total Split (%)	14.8%	29.0%	14.8%	14.8%	29.0%	21.4%	14.8%	34.8%		21.4%	41.4%	
Yellow Time (s)	3.5	5.1	3.0	3.0	5.1	3.0	3.0	4.7		3.0	4.7	
All-Red Time (s)	1.0	1.0	0.5	0.5	1.0	0.5	0.5	1.0		0.5	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	6.1	3.5	3.5	6.1	3.5	3.5	5.7		3.5	5.7	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes		Yes			Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None	None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 158.8
Actuated Cycle Length: 105.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Bixby Road/Brice Road & Winchester Pike





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	530	10	55	207	146	42	133	152	161	71	44
Future Volume (veh/h)	95	530	10	55	207	146	42	133	152	161	71	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	104	582	11	60	227	160	46	146	167	177	78	48
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	461	733	681	255	689	736	465	199	228	339	334	205
Arrive On Green	0.06	0.39	0.39	0.04	0.37	0.37	0.04	0.25	0.25	0.10	0.31	0.31
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	790	903	1767	1075	662
Grp Volume(v), veh/h	104	582	11	60	227	160	46	0	313	177	0	126
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	0	1693	1767	0	1736
Q Serve(g_s), s	3.2	24.4	0.4	1.8	7.7	5.3	1.7	0.0	15.0	6.2	0.0	4.8
Cycle Q Clear(g_c), s	3.2	24.4	0.4	1.8	7.7	5.3	1.7	0.0	15.0	6.2	0.0	4.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.53	1.00		0.38
Lane Grp Cap(c), veh/h	461	733	681	255	689	736	465	0	427	339	0	539
V/C Ratio(X)	0.23	0.79	0.02	0.23	0.33	0.22	0.10	0.00	0.73	0.52	0.00	0.23
Avail Cap(c_a), veh/h	742	841	773	579	841	864	798	0	949	779	0	1180
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.8	23.6	14.3	18.7	19.9	13.9	22.8	0.0	30.3	21.4	0.0	22.6
Incr Delay (d2), s/veh	0.2	8.7	0.0	0.5	1.3	0.7	0.1	0.0	8.5	1.2	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	11.9	0.1	0.7	3.5	1.9	0.7	0.0	7.0	2.6	0.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.0	32.2	14.3	19.2	21.2	14.6	22.9	0.0	38.8	22.6	0.0	23.4
LnGrp LOS	B	C	B	B	C	B	C	A	D	C	A	C
Approach Vol, veh/h		697			447			359			303	
Approach Delay, s/veh		29.5			18.5			36.8			22.9	
Approach LOS		C			B			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.4	41.0	6.9	33.1	9.4	38.9	12.0	27.9
Change Period (Y+Rc), s	3.5	6.1	3.5	5.7	4.5	6.1	3.5	5.7
Max Green Setting (Gmax), s	20.0	40.0	20.0	60.0	19.0	40.0	30.5	49.5
Max Q Clear Time (g_c+I1), s	3.8	26.4	3.7	6.8	5.2	9.7	8.2	17.0
Green Ext Time (p_c), s	0.1	8.4	0.1	2.1	0.2	8.1	0.5	5.3

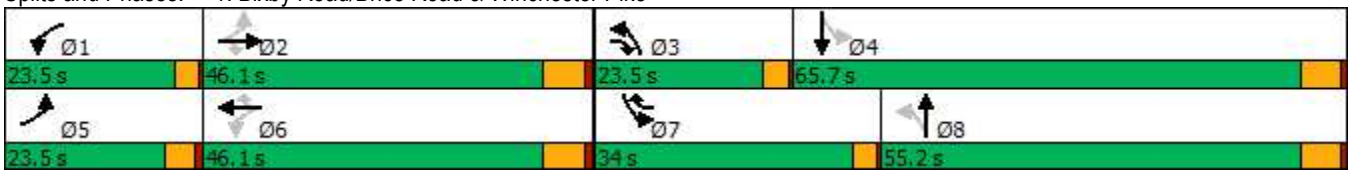
Intersection Summary	
HCM 6th Ctrl Delay	27.2
HCM 6th LOS	C

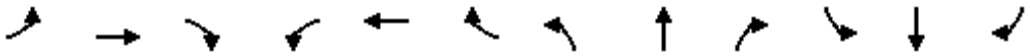
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	169	10	62	448	67	6	29	26	179	143	130
Future Volume (vph)	27	169	10	62	448	67	6	29	26	179	143	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	320		190	535		170	300		0	350		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		3574			2727			2276			1993	
Travel Time (s)		81.2			62.0			51.7			45.3	
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	3	1	6	7	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	15.0	5.0	5.0	15.0	5.0	5.0	8.0		5.0	8.0	
Minimum Split (s)	9.5	33.1	9.5	9.5	33.1	9.5	9.5	35.7		9.5	35.7	
Total Split (s)	23.5	46.1	23.5	23.5	46.1	34.0	23.5	55.2		34.0	65.7	
Total Split (%)	14.8%	29.0%	14.8%	14.8%	29.0%	21.4%	14.8%	34.8%		21.4%	41.4%	
Yellow Time (s)	3.5	5.1	3.0	3.0	5.1	3.0	3.0	4.7		3.0	4.7	
All-Red Time (s)	1.0	1.0	0.5	0.5	1.0	0.5	0.5	1.0		0.5	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	6.1	3.5	3.5	6.1	3.5	3.5	5.7		3.5	5.7	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes		Yes			Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None	None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 158.8
Actuated Cycle Length: 80
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Bixby Road/Brice Road & Winchester Pike





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	169	10	62	448	67	6	29	26	179	143	130
Future Volume (veh/h)	27	169	10	62	448	67	6	29	26	179	143	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	28	176	10	65	467	70	6	30	27	186	149	135
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	338	736	636	599	749	819	242	133	120	474	230	209
Arrive On Green	0.03	0.40	0.40	0.05	0.40	0.40	0.01	0.15	0.15	0.12	0.26	0.26
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	900	810	1767	897	813
Grp Volume(v), veh/h	28	176	10	65	467	70	6	0	57	186	0	284
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	0	1710	1767	0	1709
Q Serve(g_s), s	0.6	4.2	0.3	1.4	13.2	1.5	0.2	0.0	1.9	5.5	0.0	9.7
Cycle Q Clear(g_c), s	0.6	4.2	0.3	1.4	13.2	1.5	0.2	0.0	1.9	5.5	0.0	9.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.47	1.00		0.48
Lane Grp Cap(c), veh/h	338	736	636	599	749	819	242	0	253	474	0	439
V/C Ratio(X)	0.08	0.24	0.02	0.11	0.62	0.09	0.02	0.00	0.23	0.39	0.00	0.65
Avail Cap(c_a), veh/h	795	1128	969	1043	1128	1140	765	0	1287	1087	0	1559
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.2	13.2	11.7	10.5	15.6	7.9	23.6	0.0	24.7	18.4	0.0	21.8
Incr Delay (d2), s/veh	0.1	0.8	0.0	0.1	3.9	0.2	0.0	0.0	1.6	0.5	0.0	5.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.7	0.1	0.5	5.8	0.5	0.1	0.0	0.9	2.1	0.0	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.3	14.0	11.8	10.6	19.5	8.1	23.6	0.0	26.3	18.9	0.0	27.5
LnGrp LOS	B	B	B	B	B	A	C	A	C	B	A	C
Approach Vol, veh/h		214			602			63			470	
Approach Delay, s/veh		13.7			17.2			26.1			24.1	
Approach LOS		B			B			C			C	

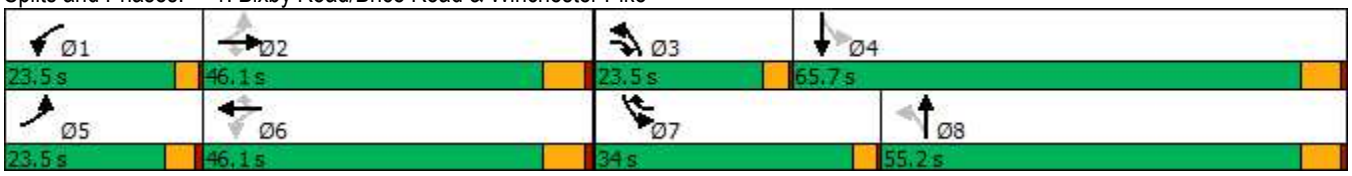
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.0	32.2	4.0	22.6	6.5	32.7	11.2	15.4
Change Period (Y+Rc), s	3.5	6.1	3.5	5.7	4.5	6.1	3.5	5.7
Max Green Setting (Gmax), s	20.0	40.0	20.0	60.0	19.0	40.0	30.5	49.5
Max Q Clear Time (g_c+I1), s	3.4	6.2	2.2	11.7	2.6	15.2	7.5	3.9
Green Ext Time (p_c), s	0.1	4.1	0.0	5.2	0.0	11.4	0.5	0.8

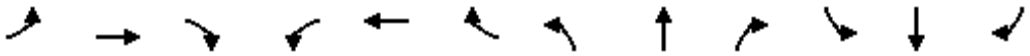
Intersection Summary	
HCM 6th Ctrl Delay	19.5
HCM 6th LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	27	169	23	114	448	67	15	40	179	181
Future Volume (vph)	27	169	23	114	448	67	15	40	179	181
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+pt	NA
Protected Phases	5	2	3	1	6	7	3	8	7	4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	3	1	6	7	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	5.0	5.0	15.0	5.0	5.0	8.0	5.0	8.0
Minimum Split (s)	9.5	33.1	9.5	9.5	33.1	9.5	9.5	35.7	9.5	35.7
Total Split (s)	23.5	46.1	23.5	23.5	46.1	34.0	23.5	55.2	34.0	65.7
Total Split (%)	14.8%	29.0%	14.8%	14.8%	29.0%	21.4%	14.8%	34.8%	21.4%	41.4%
Yellow Time (s)	3.5	5.1	3.0	3.0	5.1	3.0	3.0	4.7	3.0	4.7
All-Red Time (s)	1.0	1.0	0.5	0.5	1.0	0.5	0.5	1.0	0.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.1	3.5	3.5	6.1	3.5	3.5	5.7	3.5	5.7
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes		Yes			Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	None	Min	None	None	None	None	None

Intersection Summary
Cycle Length: 158.8
Actuated Cycle Length: 87.6
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Bixby Road/Brice Road & Winchester Pike





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	169	23	114	448	67	15	40	41	179	181	130
Future Volume (veh/h)	27	169	23	114	448	67	15	40	41	179	181	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	28	176	24	119	467	70	16	42	43	186	189	135
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	314	684	609	573	724	789	255	157	161	488	282	201
Arrive On Green	0.03	0.37	0.37	0.07	0.39	0.39	0.02	0.19	0.19	0.11	0.28	0.28
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	840	860	1767	1007	719
Grp Volume(v), veh/h	28	176	24	119	467	70	16	0	85	186	0	324
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	0	1701	1767	0	1726
Q Serve(g_s), s	0.7	4.7	0.7	2.9	14.4	1.6	0.5	0.0	3.0	5.6	0.0	11.7
Cycle Q Clear(g_c), s	0.7	4.7	0.7	2.9	14.4	1.6	0.5	0.0	3.0	5.6	0.0	11.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.51	1.00		0.42
Lane Grp Cap(c), veh/h	314	684	609	573	724	789	255	0	318	488	0	483
V/C Ratio(X)	0.09	0.26	0.04	0.21	0.65	0.09	0.06	0.00	0.27	0.38	0.00	0.67
Avail Cap(c_a), veh/h	739	1055	924	959	1055	1069	723	0	1196	1056	0	1472
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.2	15.5	13.4	12.2	17.5	9.1	22.6	0.0	24.5	18.0	0.0	22.5
Incr Delay (d2), s/veh	0.1	0.9	0.1	0.2	4.4	0.2	0.1	0.0	1.6	0.5	0.0	5.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.0	0.2	1.1	6.5	0.6	0.2	0.0	1.3	2.2	0.0	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.3	16.4	13.5	12.4	21.9	9.4	22.7	0.0	26.1	18.5	0.0	28.2
LnGrp LOS	B	B	B	B	C	A	C	A	C	B	A	C
Approach Vol, veh/h		228			656			101			510	
Approach Delay, s/veh		15.8			18.8			25.5			24.7	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.1	32.0	4.8	25.4	6.6	33.5	11.4	18.9
Change Period (Y+Rc), s	3.5	6.1	3.5	5.7	4.5	6.1	3.5	5.7
Max Green Setting (Gmax), s	20.0	40.0	20.0	60.0	19.0	40.0	30.5	49.5
Max Q Clear Time (g_c+I1), s	4.9	6.7	2.5	13.7	2.7	16.4	7.6	5.0
Green Ext Time (p_c), s	0.2	4.3	0.0	6.0	0.0	11.0	0.5	1.3

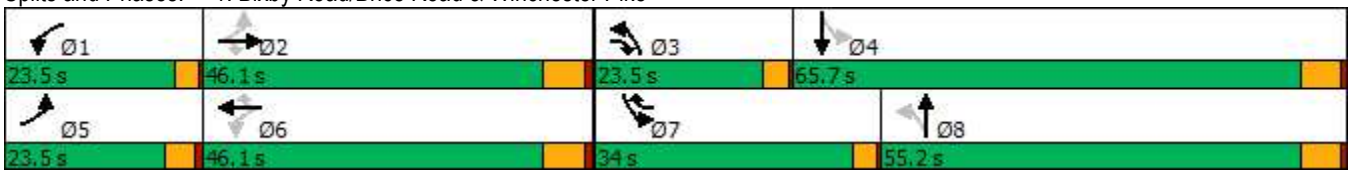
Intersection Summary	
HCM 6th Ctrl Delay	20.8
HCM 6th LOS	C

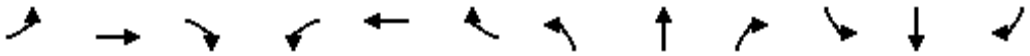
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	694	5	38	375	212	13	125	106	228	80	65
Future Volume (vph)	133	694	5	38	375	212	13	125	106	228	80	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	320		190	535		170	300		0	350		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		3574			2727			2276			1993	
Travel Time (s)		81.2			62.0			51.7			45.3	
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	3	1	6	7	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	15.0	5.0	5.0	15.0	5.0	5.0	8.0		5.0	8.0	
Minimum Split (s)	9.5	33.1	9.5	9.5	33.1	9.5	9.5	35.7		9.5	35.7	
Total Split (s)	23.5	46.1	23.5	23.5	46.1	34.0	23.5	55.2		34.0	65.7	
Total Split (%)	14.8%	29.0%	14.8%	14.8%	29.0%	21.4%	14.8%	34.8%		21.4%	41.4%	
Yellow Time (s)	3.5	5.1	3.0	3.0	5.1	3.0	3.0	4.7		3.0	4.7	
All-Red Time (s)	1.0	1.0	0.5	0.5	1.0	0.5	0.5	1.0		0.5	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	6.1	3.5	3.5	6.1	3.5	3.5	5.7		3.5	5.7	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes		Yes			Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None	None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 158.8
Actuated Cycle Length: 112.6
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Bixby Road/Brice Road & Winchester Pike





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	133	694	5	38	375	212	13	125	106	228	80	65
Future Volume (veh/h)	133	694	5	38	375	212	13	125	106	228	80	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	146	763	5	42	412	233	14	137	116	251	88	71
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	360	791	696	157	706	809	353	189	160	388	306	247
Arrive On Green	0.07	0.43	0.43	0.04	0.38	0.38	0.02	0.20	0.20	0.13	0.32	0.32
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	928	786	1767	951	767
Grp Volume(v), veh/h	146	763	5	42	412	233	14	0	253	251	0	159
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	0	1714	1767	0	1717
Q Serve(g_s), s	4.5	37.6	0.2	1.3	16.6	7.9	0.6	0.0	12.9	9.9	0.0	6.5
Cycle Q Clear(g_c), s	4.5	37.6	0.2	1.3	16.6	7.9	0.6	0.0	12.9	9.9	0.0	6.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.46	1.00		0.45
Lane Grp Cap(c), veh/h	360	791	696	157	706	809	353	0	349	388	0	552
V/C Ratio(X)	0.41	0.97	0.01	0.27	0.58	0.29	0.04	0.00	0.73	0.65	0.00	0.29
Avail Cap(c_a), veh/h	594	792	697	471	792	882	702	0	905	725	0	1099
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.6	26.2	14.6	22.7	23.1	13.0	28.8	0.0	34.9	24.0	0.0	23.8
Incr Delay (d2), s/veh	0.7	24.6	0.0	0.9	3.5	0.9	0.0	0.0	9.9	1.8	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	21.0	0.1	0.6	7.7	2.9	0.3	0.0	6.3	4.2	0.0	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.3	50.8	14.6	23.6	26.6	13.9	28.8	0.0	44.8	25.8	0.0	24.8
LnGrp LOS	B	D	B	C	C	B	C	A	D	C	A	C
Approach Vol, veh/h		914			687			267			410	
Approach Delay, s/veh		45.2			22.1			44.0			25.4	
Approach LOS		D			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.8	46.0	5.0	35.9	11.1	41.8	16.1	24.8
Change Period (Y+Rc), s	3.5	6.1	3.5	5.7	4.5	6.1	3.5	5.7
Max Green Setting (Gmax), s	20.0	40.0	20.0	60.0	19.0	40.0	30.5	49.5
Max Q Clear Time (g_c+I1), s	3.3	39.6	2.6	8.5	6.5	18.6	11.9	14.9
Green Ext Time (p_c), s	0.1	0.4	0.0	2.7	0.3	11.5	0.7	4.2

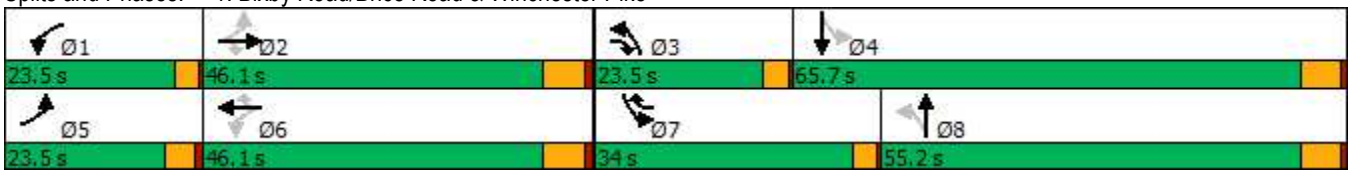
Intersection Summary	
HCM 6th Ctrl Delay	34.5
HCM 6th LOS	C

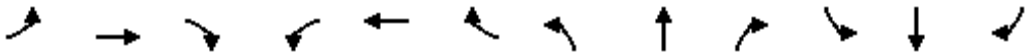
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	694	10	57	375	212	42	161	157	228	93	65
Future Volume (vph)	133	694	10	57	375	212	42	161	157	228	93	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	320		190	535		170	300		0	350		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		3574			2727			2276			1993	
Travel Time (s)		81.2			62.0			51.7			45.3	
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	3	1	6	7	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	15.0	5.0	5.0	15.0	5.0	5.0	8.0		5.0	8.0	
Minimum Split (s)	9.5	33.1	9.5	9.5	33.1	9.5	9.5	35.7		9.5	35.7	
Total Split (s)	23.5	46.1	23.5	23.5	46.1	34.0	23.5	55.2		34.0	65.7	
Total Split (%)	14.8%	29.0%	14.8%	14.8%	29.0%	21.4%	14.8%	34.8%		21.4%	41.4%	
Yellow Time (s)	3.5	5.1	3.0	3.0	5.1	3.0	3.0	4.7		3.0	4.7	
All-Red Time (s)	1.0	1.0	0.5	0.5	1.0	0.5	0.5	1.0		0.5	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	6.1	3.5	3.5	6.1	3.5	3.5	5.7		3.5	5.7	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes		Yes			Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None	None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 158.8
Actuated Cycle Length: 121.8
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Bixby Road/Brice Road & Winchester Pike





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	133	694	10	57	375	212	42	161	157	228	93	65
Future Volume (veh/h)	133	694	10	57	375	212	42	161	157	228	93	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	146	763	11	63	412	233	46	177	173	251	102	71
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	322	721	667	142	645	741	451	228	223	365	360	250
Arrive On Green	0.07	0.39	0.39	0.04	0.35	0.35	0.04	0.26	0.26	0.12	0.35	0.35
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	862	842	1767	1019	709
Grp Volume(v), veh/h	146	763	11	63	412	233	46	0	350	251	0	173
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	0	1704	1767	0	1728
Q Serve(g_s), s	5.2	40.0	0.4	2.3	19.2	9.5	1.9	0.0	19.6	10.1	0.0	7.4
Cycle Q Clear(g_c), s	5.2	40.0	0.4	2.3	19.2	9.5	1.9	0.0	19.6	10.1	0.0	7.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.49	1.00		0.41
Lane Grp Cap(c), veh/h	322	721	667	142	645	741	451	0	451	365	0	610
V/C Ratio(X)	0.45	1.06	0.02	0.44	0.64	0.31	0.10	0.00	0.78	0.69	0.00	0.28
Avail Cap(c_a), veh/h	522	721	667	413	721	806	731	0	819	669	0	1007
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.5	31.5	17.2	26.2	28.2	16.9	25.9	0.0	35.0	24.0	0.0	24.0
Incr Delay (d2), s/veh	1.0	50.1	0.0	2.2	4.8	1.1	0.1	0.0	9.9	2.3	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	27.2	0.2	1.0	9.2	3.6	0.8	0.0	9.2	4.3	0.0	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.5	81.6	17.2	28.4	33.0	18.0	26.0	0.0	45.0	26.3	0.0	24.9
LnGrp LOS	C	F	B	C	C	B	C	A	D	C	A	C
Approach Vol, veh/h		920			708			396			424	
Approach Delay, s/veh		71.3			27.6			42.8			25.7	
Approach LOS		E			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.7	46.1	7.2	42.0	11.9	41.9	16.3	32.9
Change Period (Y+Rc), s	3.5	6.1	3.5	5.7	4.5	6.1	3.5	5.7
Max Green Setting (Gmax), s	20.0	40.0	20.0	60.0	19.0	40.0	30.5	49.5
Max Q Clear Time (g_c+I1), s	4.3	42.0	3.9	9.4	7.2	21.2	12.1	21.6
Green Ext Time (p_c), s	0.1	0.0	0.1	2.9	0.3	10.5	0.7	5.7

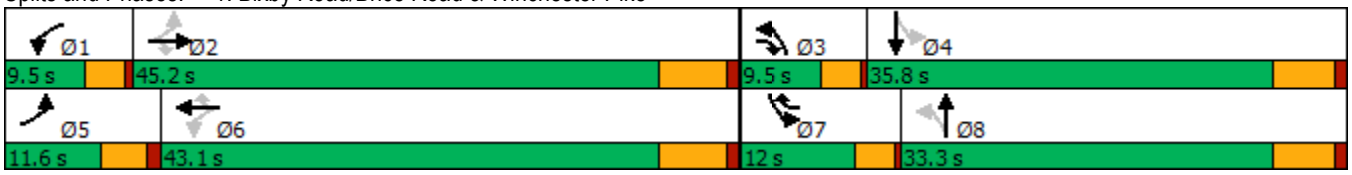
Intersection Summary	
HCM 6th Ctrl Delay	46.2
HCM 6th LOS	D

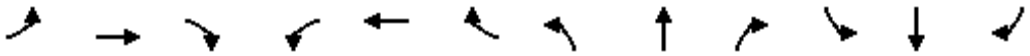
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	694	10	57	375	212	42	161	157	228	93	65
Future Volume (vph)	133	694	10	57	375	212	42	161	157	228	93	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	320		190	535		170	300		0	350		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		3574			2727			2276			1993	
Travel Time (s)		81.2			62.0			51.7			45.3	
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	3	1	6	7	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	15.0	5.0	5.0	15.0	5.0	5.0	8.0		5.0	8.0	
Minimum Split (s)	9.5	33.1	9.5	9.5	33.1	9.5	9.5	35.7		9.5	35.7	
Total Split (s)	11.6	45.2	9.5	9.5	43.1	12.0	9.5	33.3		12.0	35.8	
Total Split (%)	11.6%	45.2%	9.5%	9.5%	43.1%	12.0%	9.5%	33.3%		12.0%	35.8%	
Yellow Time (s)	3.5	5.1	3.0	3.0	5.1	3.0	3.0	4.7		3.0	4.7	
All-Red Time (s)	1.0	1.0	0.5	0.5	1.0	0.5	0.5	1.0		0.5	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	6.1	3.5	3.5	6.1	3.5	3.5	5.7		3.5	5.7	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes		Yes			Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None	None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 93.9
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Bixby Road/Brice Road & Winchester Pike





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	133	694	10	57	375	212	42	161	157	228	93	65
Future Volume (veh/h)	133	694	10	57	375	212	42	161	157	228	93	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	146	763	11	63	412	233	46	177	173	251	102	71
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	361	779	719	164	712	747	407	210	205	288	303	211
Arrive On Green	0.07	0.42	0.42	0.04	0.38	0.38	0.04	0.24	0.24	0.09	0.30	0.30
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	862	842	1767	1019	709
Grp Volume(v), veh/h	146	763	11	63	412	233	46	0	350	251	0	173
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	0	1704	1767	0	1728
Q Serve(g_s), s	4.5	37.7	0.4	2.0	16.4	8.5	1.8	0.0	18.2	8.5	0.0	7.3
Cycle Q Clear(g_c), s	4.5	37.7	0.4	2.0	16.4	8.5	1.8	0.0	18.2	8.5	0.0	7.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.49	1.00		0.41
Lane Grp Cap(c), veh/h	361	779	719	164	712	747	407	0	415	288	0	514
V/C Ratio(X)	0.40	0.98	0.02	0.38	0.58	0.31	0.11	0.00	0.84	0.87	0.00	0.34
Avail Cap(c_a), veh/h	374	779	719	202	738	769	455	0	505	288	0	559
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.7	26.6	13.8	22.6	22.7	15.0	24.7	0.0	33.5	27.5	0.0	25.5
Incr Delay (d2), s/veh	0.7	27.5	0.0	1.5	3.4	1.1	0.1	0.0	16.5	24.1	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	21.6	0.1	0.8	7.6	3.1	0.8	0.0	9.3	5.9	0.0	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.4	54.1	13.8	24.1	26.1	16.1	24.9	0.0	50.0	51.6	0.0	26.9
LnGrp LOS	B	D	B	C	C	B	C	A	D	D	A	C
Approach Vol, veh/h		920			708			396			424	
Approach Delay, s/veh		47.8			22.6			47.1			41.6	
Approach LOS		D			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.5	45.2	7.0	33.4	10.9	41.8	12.0	28.4
Change Period (Y+Rc), s	3.5	6.1	3.5	5.7	4.5	6.1	3.5	5.7
Max Green Setting (Gmax), s	6.0	39.1	6.0	30.1	7.1	37.0	8.5	27.6
Max Q Clear Time (g_c+I1), s	4.0	39.7	3.8	9.3	6.5	18.4	10.5	20.2
Green Ext Time (p_c), s	0.0	0.0	0.0	2.1	0.0	10.4	0.0	2.5

Intersection Summary	
HCM 6th Ctrl Delay	39.3
HCM 6th LOS	D

Notes

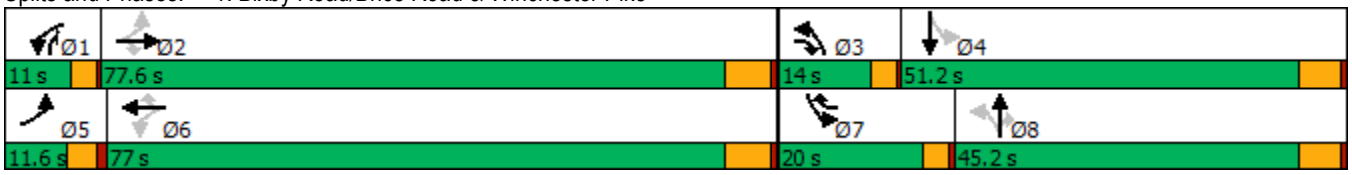
User approved pedestrian interval to be less than phase max green.

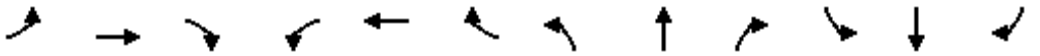
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	694	10	57	375	212	42	161	157	228	93	65
Future Volume (vph)	133	694	10	57	375	212	42	161	157	228	93	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	320		190	535		170	300		0	350		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		3574			2727			2276			1993	
Travel Time (s)		81.2			62.0			51.7			45.3	
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	5	2	3	1	6	7	3	8	1	7	4	
Switch Phase												
Minimum Initial (s)	4.0	15.0	5.0	5.0	15.0	5.0	5.0	8.0	5.0	5.0	8.0	
Minimum Split (s)	8.5	21.1	8.5	8.5	21.1	8.5	8.5	13.7	8.5	8.5	13.7	
Total Split (s)	11.6	77.6	14.0	11.0	77.0	20.0	14.0	45.2	11.0	20.0	51.2	
Total Split (%)	7.5%	50.5%	9.1%	7.2%	50.1%	13.0%	9.1%	29.4%	7.2%	13.0%	33.3%	
Yellow Time (s)	3.5	5.1	3.0	3.0	5.1	3.0	3.0	4.7	3.0	3.0	4.7	
All-Red Time (s)	1.0	1.0	0.5	0.5	1.0	0.5	0.5	1.0	0.5	0.5	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	6.1	3.5	3.5	6.1	3.5	3.5	5.7	3.5	3.5	5.7	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes		Yes			Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None	None	None	None	None	None	

Intersection Summary

Area Type: Other
Cycle Length: 153.8
Actuated Cycle Length: 121.9
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Bixby Road/Brice Road & Winchester Pike





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	133	694	10	57	375	212	42	161	157	228	93	65
Future Volume (veh/h)	133	694	10	57	375	212	42	161	157	228	93	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	146	763	11	63	412	233	46	177	173	251	102	71
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	430	963	867	252	910	980	303	285	299	361	258	180
Arrive On Green	0.06	0.52	0.52	0.04	0.49	0.49	0.03	0.15	0.15	0.13	0.25	0.25
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	1856	1572	1767	1019	709
Grp Volume(v), veh/h	146	763	11	63	412	233	46	177	173	251	0	173
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	1856	1572	1767	0	1728
Q Serve(g_s), s	4.8	40.0	0.4	2.1	17.3	7.8	2.6	10.6	11.9	13.7	0.0	9.9
Cycle Q Clear(g_c), s	4.8	40.0	0.4	2.1	17.3	7.8	2.6	10.6	11.9	13.7	0.0	9.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.41
Lane Grp Cap(c), veh/h	430	963	867	252	910	980	303	285	299	361	0	438
V/C Ratio(X)	0.34	0.79	0.01	0.25	0.45	0.24	0.15	0.62	0.58	0.70	0.00	0.40
Avail Cap(c_a), veh/h	435	1116	997	298	1107	1146	401	616	580	372	0	661
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.6	23.4	12.0	20.0	19.8	9.9	40.4	47.1	43.8	34.5	0.0	36.8
Incr Delay (d2), s/veh	0.5	6.7	0.0	0.5	1.6	0.6	0.2	7.8	6.3	5.4	0.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	18.7	0.1	0.9	7.8	2.8	1.2	5.5	5.2	6.4	0.0	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.0	30.0	12.1	20.5	21.5	10.5	40.6	54.9	50.1	39.9	0.0	38.9
LnGrp LOS	B	C	B	C	C	B	D	D	D	D	A	D
Approach Vol, veh/h		920			708			396			424	
Approach Delay, s/veh		27.4			17.8			51.1			39.5	
Approach LOS		C			B			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	67.8	7.4	35.8	11.2	64.4	19.3	24.0
Change Period (Y+Rc), s	3.5	6.1	3.5	5.7	4.5	6.1	3.5	5.7
Max Green Setting (Gmax), s	7.5	71.5	10.5	45.5	7.1	70.9	16.5	39.5
Max Q Clear Time (g_c+I1), s	4.1	42.0	4.6	11.9	6.8	19.3	15.7	13.9
Green Ext Time (p_c), s	0.0	19.7	0.0	2.6	0.0	18.4	0.1	4.4

Intersection Summary	
HCM 6th Ctrl Delay	30.6
HCM 6th LOS	C

HCS7 Two-Way Stop-Control Report

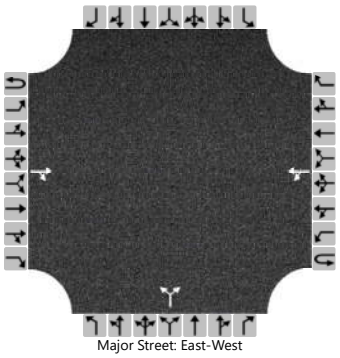
General Information

Analyst	TAH
Agency/Co.	The Kleingers Group
Date Performed	12/15/21
Analysis Year	2022
Time Analyzed	2022 AM Peak No-Build
Intersection Orientation	East-West
Project Description	Canal Crossing Phase 2 TIS

Site Information

Intersection	Bixby Road and Rager Road
Jurisdiction	Franklin County
East/West Street	Bixby Road
North/South Street	Rager Road
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			31	0		3	117			0		2				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage																

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.13				6.43		6.23				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.23				3.53		3.33				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						3					2					
Capacity, c (veh/h)						1571					1036					
v/c Ratio						0.00					0.00					
95% Queue Length, Q_{95} (veh)						0.0					0.0					
Control Delay (s/veh)						7.3					8.5					
Level of Service (LOS)						A					A					
Approach Delay (s/veh)						0.2				8.5						
Approach LOS										A						

HCS7 Two-Way Stop-Control Report

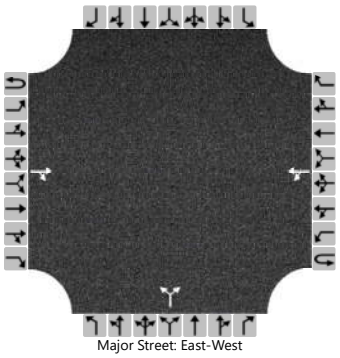
General Information

Analyst	TAH
Agency/Co.	The Kleingers Group
Date Performed	12/15/21
Analysis Year	2022
Time Analyzed	2022 AM Peak Build
Intersection Orientation	East-West
Project Description	Canal Crossing Phase 2 TIS

Site Information

Intersection	Bixby Road and Rager Road
Jurisdiction	Franklin County
East/West Street	Bixby Road
North/South Street	Rager Road
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			66	2		3	220			6		2				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.13				6.43		6.23				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.23				3.53		3.33				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						3					9					
Capacity, c (veh/h)						1517					724					
v/c Ratio						0.00					0.01					
95% Queue Length, Q_{95} (veh)						0.0					0.0					
Control Delay (s/veh)						7.4					10.0					
Level of Service (LOS)						A					B					
Approach Delay (s/veh)					0.1				10.0							
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

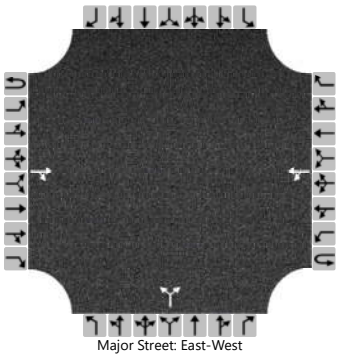
General Information

Analyst	TAH
Agency/Co.	The Kleingers Group
Date Performed	12/15/21
Analysis Year	2022
Time Analyzed	2022 PM Peak No-Build
Intersection Orientation	East-West
Project Description	Canal Crossing Phase 2 TIS

Site Information

Intersection	Bixby Road and Rager Road
Jurisdiction	Franklin County
East/West Street	Bixby Road
North/South Street	Rager Road
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			159	0		3	63			2		8				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.13				6.43		6.23				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.23				3.53		3.33				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						3					11					
Capacity, c (veh/h)						1389					829					
v/c Ratio						0.00					0.01					
95% Queue Length, Q_{95} (veh)						0.0					0.0					
Control Delay (s/veh)						7.6					9.4					
Level of Service (LOS)						A					A					
Approach Delay (s/veh)					0.4				9.4							
Approach LOS									A							

HCS7 Two-Way Stop-Control Report

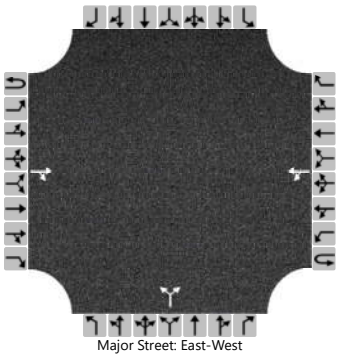
General Information

Analyst	TAH
Agency/Co.	The Kleingers Group
Date Performed	12/15/21
Analysis Year	2022
Time Analyzed	2022 PM Peak Build
Intersection Orientation	East-West
Project Description	Canal Crossing Phase 2 TIS

Site Information

Intersection	Bixby Road and Rager Road
Jurisdiction	Franklin County
East/West Street	Bixby Road
North/South Street	Rager Road
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			275	5		3	100			4		8				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.13				6.43		6.23				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.23				3.53		3.33				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						3					14					
Capacity, c (veh/h)						1236					665					
v/c Ratio						0.00					0.02					
95% Queue Length, Q_{95} (veh)						0.0					0.1					
Control Delay (s/veh)						7.9					10.5					
Level of Service (LOS)						A					B					
Approach Delay (s/veh)					0.3				10.5							
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

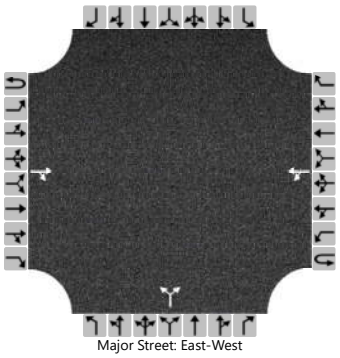
General Information

Analyst	TAH
Agency/Co.	The Kleingers Group
Date Performed	12/15/21
Analysis Year	2032
Time Analyzed	2032 AM Peak No-Build
Intersection Orientation	East-West
Project Description	Canal Crossing Phase 2 TIS

Site Information

Intersection	Bixby Road and Rager Road
Jurisdiction	Franklin County
East/West Street	Bixby Road
North/South Street	Rager Road
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			32	0		3	125			0		3				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.13				6.43		6.23				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.23				3.53		3.33				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						3					3					
Capacity, c (veh/h)						1569					1034					
v/c Ratio						0.00					0.00					
95% Queue Length, Q_{95} (veh)						0.0					0.0					
Control Delay (s/veh)						7.3					8.5					
Level of Service (LOS)						A					A					
Approach Delay (s/veh)						0.2				8.5						
Approach LOS										A						

HCS7 Two-Way Stop-Control Report

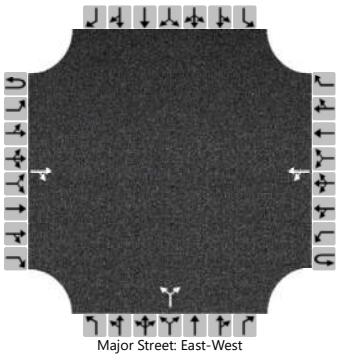
General Information

Analyst	TAH
Agency/Co.	The Kleingers Group
Date Performed	12/15/21
Analysis Year	2032
Time Analyzed	2032 AM Peak Build
Intersection Orientation	East-West
Project Description	Canal Crossing Phase 2 TIS

Site Information

Intersection	Bixby Road and Rager Road
Jurisdiction	Franklin County
East/West Street	Bixby Road
North/South Street	Rager Road
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			67	2		3	228			6		3				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.13				6.43		6.23				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.23				3.53		3.33				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						3					10					
Capacity, c (veh/h)						1516					738					
v/c Ratio						0.00					0.01					
95% Queue Length, Q_{95} (veh)						0.0					0.0					
Control Delay (s/veh)						7.4					9.9					
Level of Service (LOS)						A					A					
Approach Delay (s/veh)						0.1				9.9						
Approach LOS										A						

HCS7 Two-Way Stop-Control Report

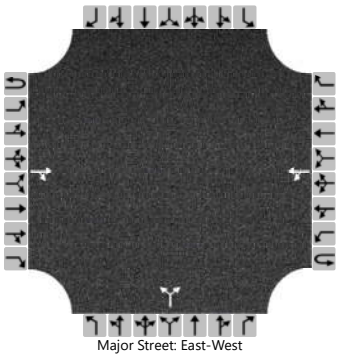
General Information

Analyst	TAH
Agency/Co.	The Kleingers Group
Date Performed	12/15/21
Analysis Year	2032
Time Analyzed	2032 PM Peak No-Build
Intersection Orientation	East-West
Project Description	Canal Crossing Phase 2 TIS

Site Information

Intersection	Bixby Road and Rager Road
Jurisdiction	Franklin County
East/West Street	Bixby Road
North/South Street	Rager Road
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			171	0		3	67			3		10				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.13				6.43		6.23				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.23				3.53		3.33				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						3					15					
Capacity, c (veh/h)						1373					809					
v/c Ratio						0.00					0.02					
95% Queue Length, Q_{95} (veh)						0.0					0.1					
Control Delay (s/veh)						7.6					9.5					
Level of Service (LOS)						A					A					
Approach Delay (s/veh)						0.3				9.5						
Approach LOS										A						

HCS7 Two-Way Stop-Control Report

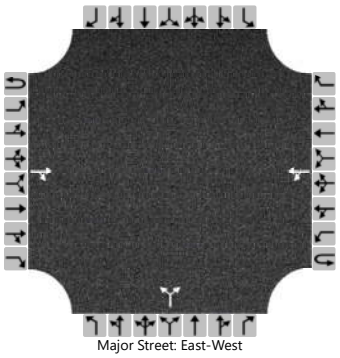
General Information

Analyst	TAH
Agency/Co.	The Kleingers Group
Date Performed	12/15/21
Analysis Year	2032
Time Analyzed	2032 PM Peak Build
Intersection Orientation	East-West
Project Description	Canal Crossing Phase 2 TIS

Site Information

Intersection	Bixby Road and Rager Road
Jurisdiction	Franklin County
East/West Street	Bixby Road
North/South Street	Rager Road
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			287	5		3	104			5		10				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.13				6.43		6.23				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.23				3.53		3.33				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						3					17					
Capacity, c (veh/h)						1222					652					
v/c Ratio						0.00					0.03					
95% Queue Length, Q_{95} (veh)						0.0					0.1					
Control Delay (s/veh)						8.0					10.7					
Level of Service (LOS)						A					B					
Approach Delay (s/veh)						0.2				10.7						
Approach LOS										B						

HCS7 Two-Way Stop-Control Report

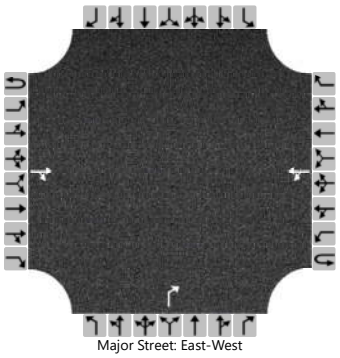
General Information

Analyst	TAH
Agency/Co.	The Kleingers Group
Date Performed	12/15/21
Analysis Year	2022
Time Analyzed	2022 AM Peak Build
Intersection Orientation	East-West
Project Description	Canal Crossing Phase 2 TIS

Site Information

Intersection	Bixby Road and Access B
Jurisdiction	Franklin County
East/West Street	Bixby Road
North/South Street	Access B
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	1		0	0	0
Configuration				TR		LT						R				
Volume (veh/h)			45	16		67	122					24				
Percent Heavy Vehicles (%)						3						3				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized										No						
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1						6.2				
Critical Headway (sec)						4.13						6.23				
Base Follow-Up Headway (sec)						2.2						3.3				
Follow-Up Headway (sec)						2.23						3.33				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						74						27				
Capacity, c (veh/h)						1527						1004				
v/c Ratio						0.05						0.03				
95% Queue Length, Q_{95} (veh)						0.2						0.1				
Control Delay (s/veh)						7.5						8.7				
Level of Service (LOS)						A						A				
Approach Delay (s/veh)						2.9				8.7						
Approach LOS										A						

HCS7 Two-Way Stop-Control Report

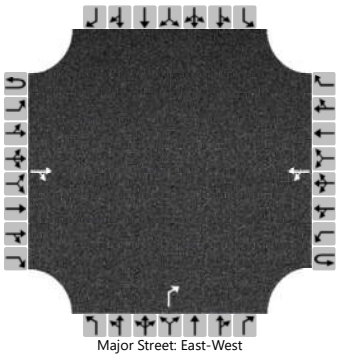
General Information

Analyst	TAH
Agency/Co.	The Kleingers Group
Date Performed	12/15/21
Analysis Year	2022
Time Analyzed	2022 PM Peak Build
Intersection Orientation	East-West
Project Description	Canal Crossing Phase 2 TIS

Site Information

Intersection	Bixby Road and Access B
Jurisdiction	Franklin County
East/West Street	Bixby Road
North/South Street	Access B
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	1		0	0	0
Configuration				TR		LT						R				
Volume (veh/h)			164	5		24	77					81				
Percent Heavy Vehicles (%)						3						3				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized										No						
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1						6.2				
Critical Headway (sec)						4.13						6.23				
Base Follow-Up Headway (sec)						2.2						3.3				
Follow-Up Headway (sec)						2.23						3.33				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						27						92				
Capacity, c (veh/h)						1375						850				
v/c Ratio						0.02						0.11				
95% Queue Length, Q_{95} (veh)						0.1						0.4				
Control Delay (s/veh)						7.7						9.7				
Level of Service (LOS)						A						A				
Approach Delay (s/veh)						1.9				9.7						
Approach LOS										A						

HCS7 Two-Way Stop-Control Report

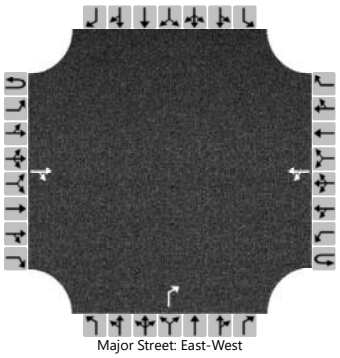
General Information

Analyst	TAH
Agency/Co.	The Kleingers Group
Date Performed	12/15/21
Analysis Year	2032
Time Analyzed	2032 AM Peak Build
Intersection Orientation	East-West
Project Description	Canal Crossing Phase 2 TIS

Site Information

Intersection	Bixby Road and Access B
Jurisdiction	Franklin County
East/West Street	Bixby Road
North/South Street	Access B
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	1		0	0	0
Configuration				TR		LT						R				
Volume (veh/h)			46	16		67	131					24				
Percent Heavy Vehicles (%)						3						3				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized										No						
Median Type | Storage					Undivided											

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1						6.2				
Critical Headway (sec)						4.13						6.23				
Base Follow-Up Headway (sec)						2.2						3.3				
Follow-Up Headway (sec)						2.23						3.33				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						74						27				
Capacity, c (veh/h)						1526						1003				
v/c Ratio						0.05						0.03				
95% Queue Length, Q_{95} (veh)						0.2						0.1				
Control Delay (s/veh)						7.5						8.7				
Level of Service (LOS)						A						A				
Approach Delay (s/veh)					2.8				8.7							
Approach LOS									A							

HCS7 Two-Way Stop-Control Report

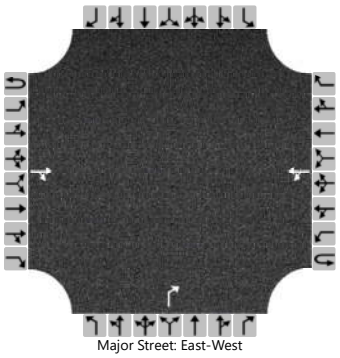
General Information

Analyst	TAH
Agency/Co.	The Kleingers Group
Date Performed	12/15/21
Analysis Year	2032
Time Analyzed	2032 PM Peak Build
Intersection Orientation	East-West
Project Description	Canal Crossing Phase 2 TIS

Site Information

Intersection	Bixby Road and Access B
Jurisdiction	Franklin County
East/West Street	Bixby Road
North/South Street	Access B
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	1		0	0	0
Configuration				TR		LT						R				
Volume (veh/h)			176	5		24	82					81				
Percent Heavy Vehicles (%)						3						3				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized										No						
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1						6.2				
Critical Headway (sec)						4.13						6.23				
Base Follow-Up Headway (sec)						2.2						3.3				
Follow-Up Headway (sec)						2.23						3.33				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						27						92				
Capacity, c (veh/h)						1360						835				
v/c Ratio						0.02						0.11				
95% Queue Length, Q_{95} (veh)						0.1						0.4				
Control Delay (s/veh)						7.7						9.8				
Level of Service (LOS)						A						A				
Approach Delay (s/veh)						1.9				9.8						
Approach LOS										A						

HCS7 Two-Way Stop-Control Report

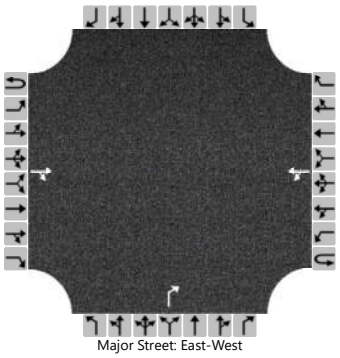
General Information

Analyst	TAH
Agency/Co.	The Kleingers Group
Date Performed	12/15/21
Analysis Year	2022
Time Analyzed	2022 AM Peak Build
Intersection Orientation	East-West
Project Description	Canal Crossing Phase 2 TIS

Site Information

Intersection	Bixby Road and Access C
Jurisdiction	Franklin County
East/West Street	Bixby Road
North/South Street	Access C
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	1		0	0	0
Configuration				TR		LT						R				
Volume (veh/h)			55	0		42	185					13				
Percent Heavy Vehicles (%)						3						3				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized										No						
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1						6.2				
Critical Headway (sec)						4.13						6.23				
Base Follow-Up Headway (sec)						2.2						3.3				
Follow-Up Headway (sec)						2.23						3.33				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						47						14				
Capacity, c (veh/h)						1536						1001				
v/c Ratio						0.03						0.01				
95% Queue Length, Q_{95} (veh)						0.1						0.0				
Control Delay (s/veh)						7.4						8.6				
Level of Service (LOS)						A						A				
Approach Delay (s/veh)						1.6				8.6						
Approach LOS										A						

HCS7 Two-Way Stop-Control Report

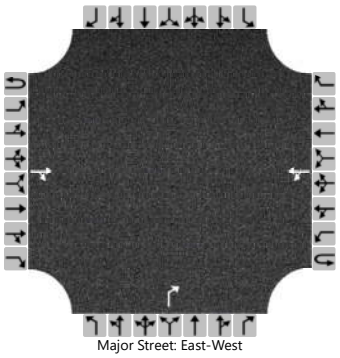
General Information

Analyst	TAH
Agency/Co.	The Kleingers Group
Date Performed	12/15/21
Analysis Year	2022
Time Analyzed	2022 PM Peak Build
Intersection Orientation	East-West
Project Description	Canal Crossing Phase 2 TIS

Site Information

Intersection	Bixby Road and Access C
Jurisdiction	Franklin County
East/West Street	Bixby Road
North/South Street	Access C
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	1		0	0	0
Configuration				TR		LT						R				
Volume (veh/h)			240	0		15	89					40				
Percent Heavy Vehicles (%)						3						3				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized										No						
Median Type | Storage					Undivided											

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1						6.2				
Critical Headway (sec)						4.13						6.23				
Base Follow-Up Headway (sec)						2.2						3.3				
Follow-Up Headway (sec)						2.23						3.33				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						17						45				
Capacity, c (veh/h)						1285						764				
v/c Ratio						0.01						0.06				
95% Queue Length, Q_{95} (veh)						0.0						0.2				
Control Delay (s/veh)						7.8						10.0				
Level of Service (LOS)						A						B				
Approach Delay (s/veh)					1.2				10.0							
Approach LOS									B							

HCS7 Two-Way Stop-Control Report

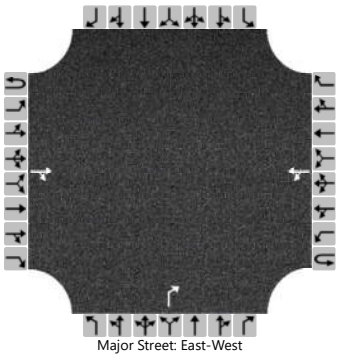
General Information

Analyst	TAH
Agency/Co.	The Kleingers Group
Date Performed	12/15/21
Analysis Year	2032
Time Analyzed	2032 AM Peak Build
Intersection Orientation	East-West
Project Description	Canal Crossing Phase 2 TIS

Site Information

Intersection	Bixby Road and Access C
Jurisdiction	Franklin County
East/West Street	Bixby Road
North/South Street	Access C
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	1		0	0	0
Configuration				TR		LT						R				
Volume (veh/h)			56	0		42	194					13				
Percent Heavy Vehicles (%)						3						3				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized										No						
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1						6.2				
Critical Headway (sec)						4.13						6.23				
Base Follow-Up Headway (sec)						2.2						3.3				
Follow-Up Headway (sec)						2.23						3.33				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						47						14				
Capacity, c (veh/h)						1534						1000				
v/c Ratio						0.03						0.01				
95% Queue Length, Q_{95} (veh)						0.1						0.0				
Control Delay (s/veh)						7.4						8.7				
Level of Service (LOS)						A						A				
Approach Delay (s/veh)						1.5				8.7						
Approach LOS										A						

HCS7 Two-Way Stop-Control Report

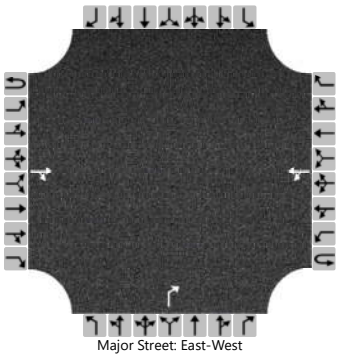
General Information

Analyst	TAH
Agency/Co.	The Kleingers Group
Date Performed	12/15/21
Analysis Year	2032
Time Analyzed	2032 PM Peak Build
Intersection Orientation	East-West
Project Description	Canal Crossing Phase 2 TIS

Site Information

Intersection	Bixby Road and Access C
Jurisdiction	Franklin County
East/West Street	Bixby Road
North/South Street	Access C
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	1		0	0	0
Configuration				TR		LT						R				
Volume (veh/h)			252	0		15	94					40				
Percent Heavy Vehicles (%)						3						3				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized										No						
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1						6.2				
Critical Headway (sec)						4.13						6.23				
Base Follow-Up Headway (sec)						2.2						3.3				
Follow-Up Headway (sec)						2.23						3.33				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						17						45				
Capacity, c (veh/h)						1270						750				
v/c Ratio						0.01						0.06				
95% Queue Length, Q_{95} (veh)						0.0						0.2				
Control Delay (s/veh)						7.9						10.1				
Level of Service (LOS)						A						B				
Approach Delay (s/veh)						1.2				10.1						
Approach LOS										B						

HCS7 Two-Way Stop-Control Report

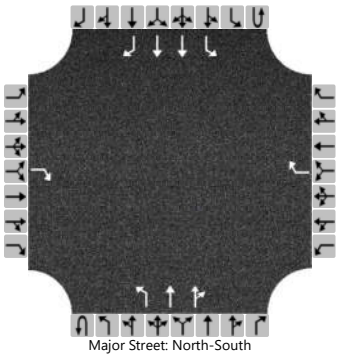
General Information

Analyst	TAH
Agency/Co.	The Kleingers Group
Date Performed	12/15/21
Analysis Year	2022
Time Analyzed	2022 AM Peak No-Build
Intersection Orientation	North-South
Project Description	Canal Crossing Phase 2 Traffic Study

Site Information

Intersection	US 33@Bixby Road
Jurisdiction	Franklin County
East/West Street	Bixby Road
North/South Street	US 33
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	1		0	0	1	0	1	2	0	0	1	2	1
Configuration				R				R		L	T	TR		L	T	R
Volume (veh/h)				31				122	0	60	3680	1	0	44	1588	14
Percent Heavy Vehicles (%)				3				3	3	3			3	3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized	No				No								No			
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)				6.9				6.9		4.1				4.1		
Critical Headway (sec)				6.96				6.96		4.16				4.16		
Base Follow-Up Headway (sec)				3.3				3.3		2.2				2.2		
Follow-Up Headway (sec)				3.33				3.33		2.23				2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)				34				133		65				48		
Capacity, c (veh/h)				296				50		353				43		
v/c Ratio				0.11				2.67		0.18				1.12		
95% Queue Length, Q_{95} (veh)				0.4				13.9		0.7				4.6		
Control Delay (s/veh)				18.7				932.2		17.5				321.8		
Level of Service (LOS)				C				F		C				F		
Approach Delay (s/veh)	18.7				932.2				0.3				8.6			
Approach LOS	C				F											

HCS7 Two-Way Stop-Control Report

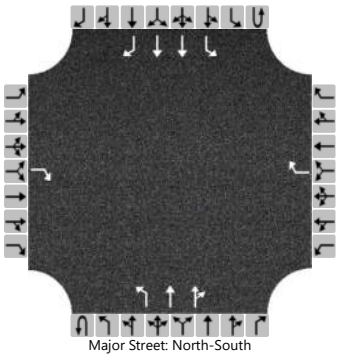
General Information

Analyst	TAH
Agency/Co.	The Kleingers Group
Date Performed	12/15/21
Analysis Year	2022
Time Analyzed	2022 AM Peak Build
Intersection Orientation	North-South
Project Description	Canal Crossing Phase 2 Traffic Study

Site Information

Intersection	US 33@Bixby Road
Jurisdiction	Franklin County
East/West Street	Bixby Road
North/South Street	US 33
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	1		0	0	1	0	1	2	0	0	1	2	1
Configuration				R				R		L	T	TR		L	T	R
Volume (veh/h)				31				122	0	60	3680	1	0	60	1588	14
Percent Heavy Vehicles (%)				3				3	3	3			3	3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized	No				No								No			
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)				6.9				6.9		4.1				4.1		
Critical Headway (sec)				6.96				6.96		4.16				4.16		
Base Follow-Up Headway (sec)				3.3				3.3		2.2				2.2		
Follow-Up Headway (sec)				3.33				3.33		2.23				2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)				34				133		65				65		
Capacity, c (veh/h)				296				50		353				43		
v/c Ratio				0.11				2.67		0.18				1.52		
95% Queue Length, Q_{95} (veh)				0.4				13.9		0.7				6.5		
Control Delay (s/veh)				18.7				932.2		17.5				473.0		
Level of Service (LOS)				C				F		C				F		
Approach Delay (s/veh)	18.7				932.2				0.3				17.1			
Approach LOS	C				F											

HCS7 Two-Way Stop-Control Report

General Information

Analyst	TAH
Agency/Co.	The Kleingers Group
Date Performed	12/15/21
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Time Analyzed	2022 PM Peak No-Build
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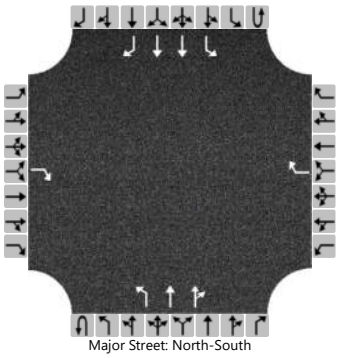
Project Description	Canal Crossing Phase 2 Traffic Study

Site Information

Intersection	US 33@Bixby Road
Jurisdiction	Franklin County
East/West Street	Bixby Road
North/South Street	US 33
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	1		0	0	1	0	1	2	0	0	1	2	1
Configuration				R				R		L	T	TR		L	T	R
Volume (veh/h)				57				77	0	29	1881	13	0	153	4018	29
Percent Heavy Vehicles (%)				3				3	3	3			3	3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized	No				No								No			
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)				6.9				6.9		4.1				4.1		
Critical Headway (sec)				6.96				6.96		4.16				4.16		
Base Follow-Up Headway (sec)				3.3				3.3		2.2				2.2		
Follow-Up Headway (sec)				3.33				3.33		2.23				2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)				62				84		32				166		
Capacity, c (veh/h)				37				229		29				265		
v/c Ratio				1.68				0.37		1.08				0.63		
95% Queue Length, Q_{95} (veh)				6.6				1.6		3.6				3.9		
Control Delay (s/veh)				565.9				29.5		391.8				39.1		
Level of Service (LOS)				F				D		F				E		
Approach Delay (s/veh)	565.9				29.5				5.9				1.4			
Approach LOS	F				D											

HCS7 Two-Way Stop-Control Report

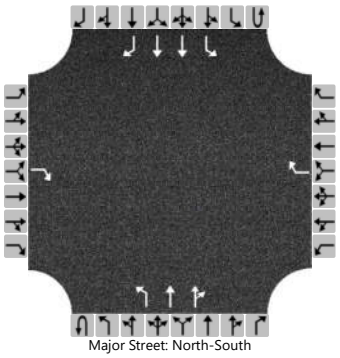
General Information

Analyst	TAH
Agency/Co.	The Kleingers Group
Date Performed	12/15/21
Analysis Year	2022
Time Analyzed	2022 PM Peak Build
Intersection Orientation	North-South
Project Description	Canal Crossing Phase 2 Traffic Study

Site Information

Intersection	US 33@Bixby Road
Jurisdiction	Franklin County
East/West Street	Bixby Road
North/South Street	US 33
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	1		0	0	1	0	1	2	0	0	1	2	1
Configuration				R				R		L	T	TR		L	T	R
Volume (veh/h)				57				77	0	29	1881	13	0	158	4018	29
Percent Heavy Vehicles (%)				3				3	3	3			3	3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized	No				No								No			
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)				6.9				6.9		4.1				4.1		
Critical Headway (sec)				6.96				6.96		4.16				4.16		
Base Follow-Up Headway (sec)				3.3				3.3		2.2				2.2		
Follow-Up Headway (sec)				3.33				3.33		2.23				2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)				62				84		32				172		
Capacity, c (veh/h)				37				229		29				265		
v/c Ratio				1.68				0.37		1.08				0.65		
95% Queue Length, Q_{95} (veh)				6.6				1.6		3.6				4.1		
Control Delay (s/veh)				565.9				29.5		391.8				40.7		
Level of Service (LOS)				F				D		F				E		
Approach Delay (s/veh)	565.9				29.5				5.9				1.5			
Approach LOS	F				D											

HCS7 Two-Way Stop-Control Report

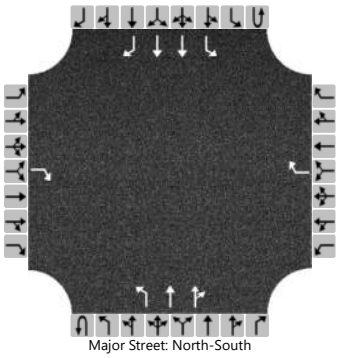
General Information

Analyst	TAH
Agency/Co.	The Kleingers Group
Date Performed	12/15/21
Analysis Year	2032
Time Analyzed	2032 AM Peak No-Build
Intersection Orientation	North-South
Project Description	Canal Crossing Phase 2 Traffic Study

Site Information

Intersection	US 33@Bixby Road
Jurisdiction	Franklin County
East/West Street	Bixby Road
North/South Street	US 33
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	1		0	0	1	0	1	2	0	0	1	2	1
Configuration				R				R		L	T	TR		L	T	R
Volume (veh/h)				34				131	0	68	4209	1	0	46	1816	16
Percent Heavy Vehicles (%)				3				3	3	3			3	3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized	No				No								No			
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)				6.9				6.9		4.1				4.1		
Critical Headway (sec)				6.96				6.96		4.16				4.16		
Base Follow-Up Headway (sec)				3.3				3.3		2.2				2.2		
Follow-Up Headway (sec)				3.33				3.33		2.23				2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)				37				142		74				50		
Capacity, c (veh/h)				245				31		281				25		
v/c Ratio				0.15				4.56		0.26				2.04		
95% Queue Length, Q_{95} (veh)				0.5				17.0		1.0				6.2		
Control Delay (s/veh)				22.3				1860.7		22.3				818.8		
Level of Service (LOS)				C				F		C				F		
Approach Delay (s/veh)	22.3				1860.7				0.4				20.1			
Approach LOS	C				F											

HCS7 Two-Way Stop-Control Report

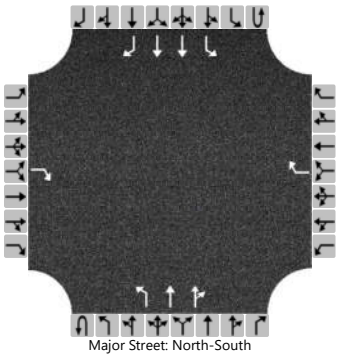
General Information

Analyst	TAH
Agency/Co.	The Kleingers Group
Date Performed	12/15/21
Analysis Year	2032
Time Analyzed	2032 AM Peak Build
Intersection Orientation	North-South
Project Description	Canal Crossing Phase 2 Traffic Study

Site Information

Intersection	US 33@Bixby Road
Jurisdiction	Franklin County
East/West Street	Bixby Road
North/South Street	US 33
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	1		0	0	1	0	1	2	0	0	1	2	1
Configuration				R				R		L	T	TR		L	T	R
Volume (veh/h)				34				131	0	68	4209	1	0	62	1816	16
Percent Heavy Vehicles (%)				3				3	3	3			3	3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized	No				No								No			
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)				6.9				6.9		4.1				4.1		
Critical Headway (sec)				6.96				6.96		4.16				4.16		
Base Follow-Up Headway (sec)				3.3				3.3		2.2				2.2		
Follow-Up Headway (sec)				3.33				3.33		2.23				2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)				37				142		74				67		
Capacity, c (veh/h)				245				31		281				25		
v/c Ratio				0.15				4.56		0.26				2.74		
95% Queue Length, Q_{95} (veh)				0.5				17.0		1.0				8.4		
Control Delay (s/veh)				22.3				1860.7		22.3				1122.6		
Level of Service (LOS)				C				F		C				F		
Approach Delay (s/veh)	22.3				1860.7				0.4				36.7			
Approach LOS	C				F											

HCS7 Two-Way Stop-Control Report

General Information

Analyst	TAH
Agency/Co.	The Kleingers Group
Date Performed	12/15/21
Analysis Year	2032
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Intersection Orientation	North-South
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Site Information

Intersection	US 33@Bixby Road
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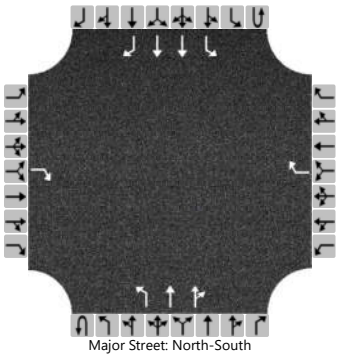
North/South Street	US 33
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	1		0	0	1	0	1	2	0	0	1	2	1
Configuration				R				R		L	T	TR		L	T	R
Volume (veh/h)				62				82	0	33	2151	14	0	170	4595	33
Percent Heavy Vehicles (%)				3				3	3	3			3	3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized	No				No								No			
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)				6.9				6.9		4.1				4.1		
Critical Headway (sec)				6.96				6.96		4.16				4.16		
Base Follow-Up Headway (sec)				3.3				3.3		2.2				2.2		
Follow-Up Headway (sec)				3.33				3.33		2.23				2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)				67				89		36				185		
Capacity, c (veh/h)				22				182		16				202		
v/c Ratio				3.04				0.49		2.28				0.91		
95% Queue Length, Q_{95} (veh)				8.6				2.4		5.1				7.3		
Control Delay (s/veh)				1283.0				42.3		1085.6				91.2		
Level of Service (LOS)				F				E		F				F		
Approach Delay (s/veh)	1283.0				42.3				16.3				3.2			
Approach LOS	F				E											

HCS7 Two-Way Stop-Control Report

General Information

Analyst	TAH
Agency/Co.	The Kleingers Group
Date Performed	12/15/21
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Site Information

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Jurisdiction	Franklin County
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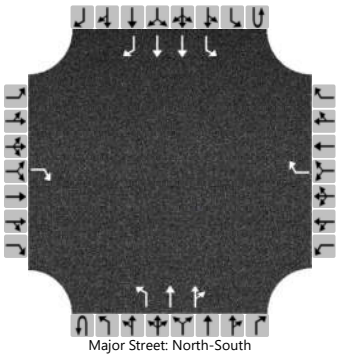
North/South Street	US 33
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	1		0	0	1	0	1	2	0	0	1	2	1
Configuration				R				R		L	T	TR		L	T	R
Volume (veh/h)				62				82	0	33	2151	14	0	175	4595	33
Percent Heavy Vehicles (%)				3				3	3	3			3	3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized	No				No								No			
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)				6.9				6.9		4.1				4.1		
Critical Headway (sec)				6.96				6.96		4.16				4.16		
Base Follow-Up Headway (sec)				3.3				3.3		2.2				2.2		
Follow-Up Headway (sec)				3.33				3.33		2.23				2.23		

Delay, Queue Length, and Level of Service

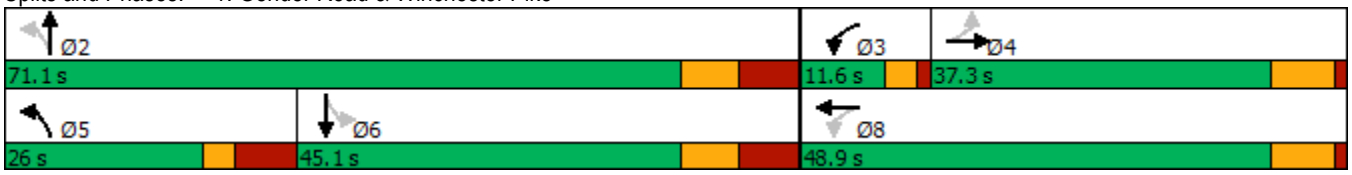
Flow Rate, v (veh/h)				67				89		36				190		
Capacity, c (veh/h)				22				182		16				202		
v/c Ratio				3.04				0.49		2.28				0.94		
95% Queue Length, Q_{95} (veh)				8.6				2.4		5.1				7.7		
Control Delay (s/veh)				1283.0				42.3		1085.6				97.3		
Level of Service (LOS)				F				E		F				F		
Approach Delay (s/veh)	1283.0				42.3				16.3				3.5			
Approach LOS	F				E											

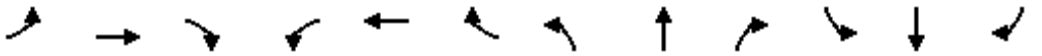
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	10	301	151	60	16	633	528	41	71	865	332
Future Volume (vph)	92	10	301	151	60	16	633	528	41	71	865	332
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		55			25			35			50	
Link Distance (ft)		2226			2912			2436			1839	
Travel Time (s)		27.6			79.4			47.5			25.1	
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		7.0	25.0		23.3	23.3	
Minimum Split (s)	20.0	20.0		11.5	48.9		15.4	35.7		35.7	35.7	
Total Split (s)	37.3	37.3		11.6	48.9		26.0	71.1		45.1	45.1	
Total Split (%)	31.1%	31.1%		9.7%	40.8%		21.7%	59.3%		37.6%	37.6%	
Yellow Time (s)	5.6	5.6		3.0	5.6		3.0	5.2		5.2	5.2	
All-Red Time (s)	1.3	1.3		1.2	1.3		5.4	5.5		5.5	5.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.9	6.9		4.2	6.9		8.4	10.7		10.7	10.7	
Lead/Lag	Lag	Lag		Lead			Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 104.3
Natural Cycle: 150
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Gender Road & Winchester Pike





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	10	301	151	60	16	633	528	41	71	865	332
Future Volume (veh/h)	92	10	301	151	60	16	633	528	41	71	865	332
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	100	11	327	164	65	17	688	574	45	77	940	361
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	368	12	359	202	475	124	330	1726	135	299	741	282
Arrive On Green	0.23	0.23	0.23	0.06	0.33	0.33	0.15	0.52	0.52	0.29	0.29	0.29
Sat Flow, veh/h	1316	52	1541	1781	1429	374	1781	3339	261	804	2516	959
Grp Volume(v), veh/h	100	0	338	164	0	82	688	305	314	77	662	639
Grp Sat Flow(s),veh/h/ln	1316	0	1593	1781	0	1803	1781	1777	1823	804	1777	1698
Q Serve(g_s), s	7.4	0.0	24.1	7.4	0.0	3.7	17.6	11.7	11.7	8.7	34.4	34.4
Cycle Q Clear(g_c), s	7.4	0.0	24.1	7.4	0.0	3.7	17.6	11.7	11.7	8.7	34.4	34.4
Prop In Lane	1.00		0.97	1.00		0.21	1.00		0.14	1.00		0.56
Lane Grp Cap(c), veh/h	368	0	371	202	0	599	330	919	943	299	523	500
V/C Ratio(X)	0.27	0.00	0.91	0.81	0.00	0.14	2.08	0.33	0.33	0.26	1.26	1.28
Avail Cap(c_a), veh/h	404	0	415	202	0	648	330	919	943	299	523	500
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.2	0.0	43.6	35.5	0.0	27.3	36.2	16.4	16.5	32.1	41.2	41.2
Incr Delay (d2), s/veh	0.5	0.0	23.1	22.2	0.0	0.1	498.4	0.3	0.2	0.5	133.8	140.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	11.3	4.8	0.0	1.7	55.1	4.7	4.8	1.7	33.6	33.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.7	0.0	66.7	57.7	0.0	27.4	534.6	16.7	16.7	32.7	175.1	181.2
LnGrp LOS	D	A	E	E	A	C	F	B	B	C	F	F
Approach Vol, veh/h		438			246			1307			1378	
Approach Delay, s/veh		60.1			47.6			289.3			170.0	
Approach LOS		E			D			F			F	

Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		71.1	11.6	34.1	26.0	45.1		45.7				
Change Period (Y+Rc), s		10.7	* 4.2	* 6.9	* 8.4	10.7		* 6.9				
Max Green Setting (Gmax), s		60.4	* 7.4	* 30	* 18	34.4		* 42				
Max Q Clear Time (g_c+I1), s		13.7	9.4	26.1	19.6	36.4		5.7				
Green Ext Time (p_c), s		5.1	0.0	1.1	0.0	0.0		0.6				

Intersection Summary	
HCM 6th Ctrl Delay	193.1
HCM 6th LOS	F

Notes

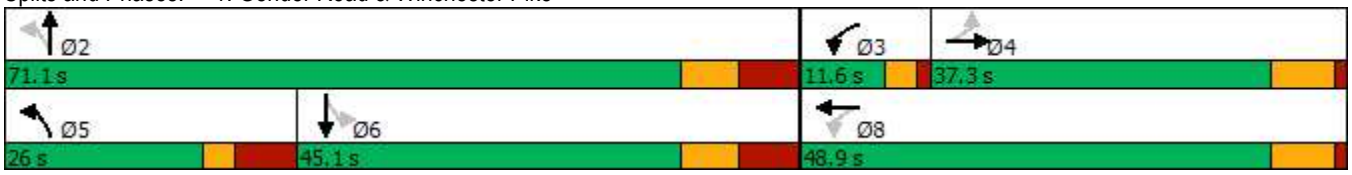
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

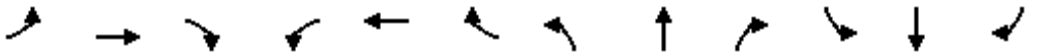
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	372	25	673	145	29	27	472	1041	40	81	881	66
Future Volume (vph)	372	25	673	145	29	27	472	1041	40	81	881	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		55			25			35			50	
Link Distance (ft)		2226			2912			2436			1839	
Travel Time (s)		27.6			79.4			47.5			25.1	
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		7.0	25.0		23.3	23.3	
Minimum Split (s)	20.0	20.0		11.5	48.9		15.4	35.7		35.7	35.7	
Total Split (s)	37.3	37.3		11.6	48.9		26.0	71.1		45.1	45.1	
Total Split (%)	31.1%	31.1%		9.7%	40.8%		21.7%	59.3%		37.6%	37.6%	
Yellow Time (s)	5.6	5.6		3.0	5.6		3.0	5.2		5.2	5.2	
All-Red Time (s)	1.3	1.3		1.2	1.3		5.4	5.5		5.5	5.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.9	6.9		4.2	6.9		8.4	10.7		10.7	10.7	
Lead/Lag	Lag	Lag		Lead			Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Natural Cycle: 150
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Gender Road & Winchester Pike





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	372	25	673	145	29	27	472	1041	40	81	881	66
Future Volume (veh/h)	372	25	673	145	29	27	472	1041	40	81	881	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	404	27	732	158	32	29	513	1132	43	88	958	72
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	400	14	389	170	316	287	322	1757	67	186	960	72
Arrive On Green	0.25	0.25	0.25	0.06	0.35	0.35	0.15	0.50	0.50	0.29	0.29	0.29
Sat Flow, veh/h	1341	57	1537	1781	904	819	1781	3491	133	477	3350	252
Grp Volume(v), veh/h	404	0	759	158	0	61	513	576	599	88	508	522
Grp Sat Flow(s),veh/h/ln	1341	0	1594	1781	0	1723	1781	1777	1846	477	1777	1825
Q Serve(g_s), s	30.4	0.0	30.4	7.4	0.0	2.9	17.6	28.6	28.6	19.9	34.3	34.3
Cycle Q Clear(g_c), s	30.4	0.0	30.4	7.4	0.0	2.9	17.6	28.6	28.6	22.6	34.3	34.3
Prop In Lane	1.00		0.96	1.00		0.48	1.00		0.07	1.00		0.14
Lane Grp Cap(c), veh/h	400	0	404	170	0	603	322	894	929	186	509	523
V/C Ratio(X)	1.01	0.00	1.88	0.93	0.00	0.10	1.59	0.64	0.64	0.47	1.00	1.00
Avail Cap(c_a), veh/h	400	0	404	170	0	603	322	894	929	186	509	523
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.1	0.0	44.8	34.9	0.0	26.3	37.1	21.9	21.9	39.8	42.8	42.8
Incr Delay (d2), s/veh	47.6	0.0	405.3	49.4	0.0	0.1	281.6	1.7	1.6	2.2	39.2	38.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.0	0.0	56.8	5.7	0.0	1.2	34.7	11.9	12.4	2.4	19.8	20.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	94.7	0.0	450.1	84.3	0.0	26.4	318.8	23.6	23.6	42.0	82.0	81.4
LnGrp LOS	F	A	F	F	A	C	F	C	C	D	F	F
Approach Vol, veh/h		1163			219			1688			1118	
Approach Delay, s/veh		326.6			68.2			113.3			78.6	
Approach LOS		F			E			F			E	

Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		71.1	11.6	37.3	26.0	45.1		48.9				
Change Period (Y+Rc), s		10.7	* 4.2	* 6.9	* 8.4	10.7		* 6.9				
Max Green Setting (Gmax), s		60.4	* 7.4	* 30	* 18	34.4		* 42				
Max Q Clear Time (g_c+I1), s		30.6	9.4	32.4	19.6	36.3		4.9				
Green Ext Time (p_c), s		11.0	0.0	0.0	0.0	0.0		0.4				

Intersection Summary	
HCM 6th Ctrl Delay	160.9
HCM 6th LOS	F

Notes

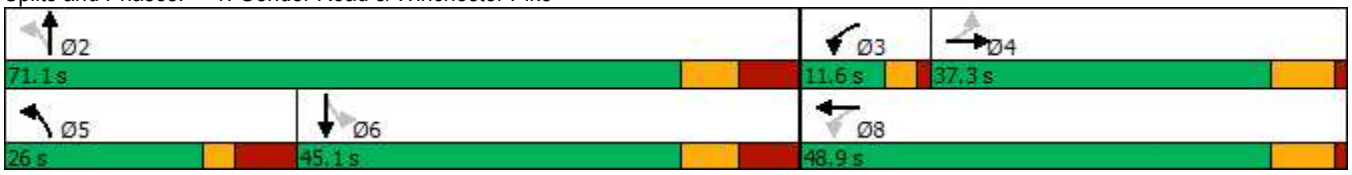
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

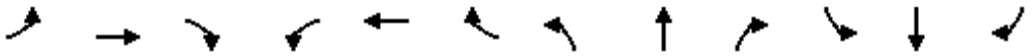
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	10	316	151	60	16	685	528	41	71	865	332
Future Volume (vph)	92	10	316	151	60	16	685	528	41	71	865	332
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		55			25			35			50	
Link Distance (ft)		2226			2912			2436			1839	
Travel Time (s)		27.6			79.4			47.5			25.1	
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		7.0	25.0		23.3	23.3	
Minimum Split (s)	20.0	20.0		11.5	48.9		15.4	35.7		35.7	35.7	
Total Split (s)	37.3	37.3		11.6	48.9		26.0	71.1		45.1	45.1	
Total Split (%)	31.1%	31.1%		9.7%	40.8%		21.7%	59.3%		37.6%	37.6%	
Yellow Time (s)	5.6	5.6		3.0	5.6		3.0	5.2		5.2	5.2	
All-Red Time (s)	1.3	1.3		1.2	1.3		5.4	5.5		5.5	5.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.9	6.9		4.2	6.9		8.4	10.7		10.7	10.7	
Lead/Lag	Lag	Lag		Lead			Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 104.3
Natural Cycle: 150
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Gender Road & Winchester Pike





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	10	316	151	60	16	685	528	41	71	865	332
Future Volume (veh/h)	92	10	316	151	60	16	685	528	41	71	865	332
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	100	11	343	164	65	17	745	574	45	77	940	361
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	378	12	371	197	484	127	327	1709	134	296	733	280
Arrive On Green	0.24	0.24	0.24	0.06	0.34	0.34	0.15	0.51	0.51	0.29	0.29	0.29
Sat Flow, veh/h	1316	49	1543	1781	1429	374	1781	3339	261	804	2516	959
Grp Volume(v), veh/h	100	0	354	164	0	82	745	305	314	77	662	639
Grp Sat Flow(s),veh/h/ln	1316	0	1593	1781	0	1803	1781	1777	1823	804	1777	1698
Q Serve(g_s), s	7.4	0.0	25.6	7.4	0.0	3.7	17.6	11.9	12.0	8.8	34.4	34.4
Cycle Q Clear(g_c), s	7.4	0.0	25.6	7.4	0.0	3.7	17.6	11.9	12.0	8.8	34.4	34.4
Prop In Lane	1.00		0.97	1.00		0.21	1.00		0.14	1.00		0.56
Lane Grp Cap(c), veh/h	378	0	383	197	0	611	327	910	933	296	518	495
V/C Ratio(X)	0.26	0.00	0.92	0.83	0.00	0.13	2.28	0.34	0.34	0.26	1.28	1.29
Avail Cap(c_a), veh/h	400	0	410	197	0	642	327	910	933	296	518	495
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.8	0.0	43.7	35.6	0.0	27.0	36.6	17.0	17.0	32.7	41.8	41.8
Incr Delay (d2), s/veh	0.5	0.0	25.9	25.7	0.0	0.1	585.8	0.3	0.3	0.6	139.3	145.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	12.3	4.9	0.0	1.7	62.6	4.8	5.0	1.7	34.3	33.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.3	0.0	69.7	61.2	0.0	27.1	622.4	17.2	17.2	33.3	181.1	187.4
LnGrp LOS	D	A	E	E	A	C	F	B	B	C	F	F
Approach Vol, veh/h		454			246			1364			1378	
Approach Delay, s/veh		62.6			49.9			347.8			175.8	
Approach LOS		E			D			F			F	

Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		71.1	11.6	35.3	26.0	45.1		46.9				
Change Period (Y+Rc), s		10.7	* 4.2	* 6.9	* 8.4	10.7		* 6.9				
Max Green Setting (Gmax), s		60.4	* 7.4	* 30	* 18	34.4		* 42				
Max Q Clear Time (g_c+I1), s		14.0	9.4	27.6	19.6	36.4		5.7				
Green Ext Time (p_c), s		5.1	0.0	0.8	0.0	0.0		0.6				

Intersection Summary												
HCM 6th Ctrl Delay			220.0									
HCM 6th LOS			F									

Notes

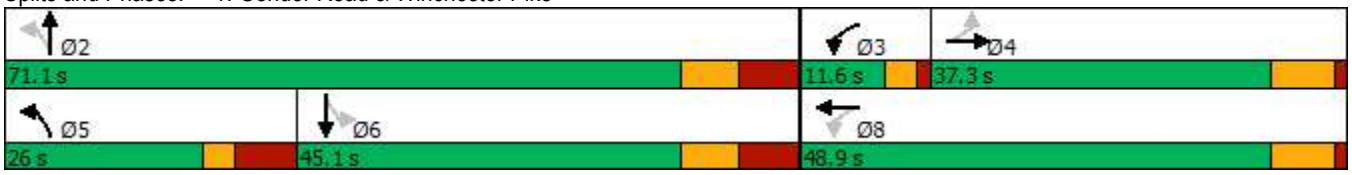
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

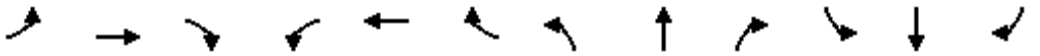
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	372	25	724	145	29	27	491	1041	40	81	881	66
Future Volume (vph)	372	25	724	145	29	27	491	1041	40	81	881	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		55			25			35			50	
Link Distance (ft)		2226			2912			2436			1839	
Travel Time (s)		27.6			79.4			47.5			25.1	
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		7.0	25.0		23.3	23.3	
Minimum Split (s)	20.0	20.0		11.5	48.9		15.4	35.7		35.7	35.7	
Total Split (s)	37.3	37.3		11.6	48.9		26.0	71.1		45.1	45.1	
Total Split (%)	31.1%	31.1%		9.7%	40.8%		21.7%	59.3%		37.6%	37.6%	
Yellow Time (s)	5.6	5.6		3.0	5.6		3.0	5.2		5.2	5.2	
All-Red Time (s)	1.3	1.3		1.2	1.3		5.4	5.5		5.5	5.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.9	6.9		4.2	6.9		8.4	10.7		10.7	10.7	
Lead/Lag	Lag	Lag		Lead			Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Natural Cycle: 150
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Gender Road & Winchester Pike





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	372	25	724	145	29	27	491	1041	40	81	881	66
Future Volume (veh/h)	372	25	724	145	29	27	491	1041	40	81	881	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	404	27	787	158	32	29	534	1132	43	88	958	72
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	400	13	390	170	316	287	322	1757	67	186	960	72
Arrive On Green	0.25	0.25	0.25	0.06	0.35	0.35	0.15	0.50	0.50	0.29	0.29	0.29
Sat Flow, veh/h	1341	53	1540	1781	904	819	1781	3491	133	477	3350	252
Grp Volume(v), veh/h	404	0	814	158	0	61	534	576	599	88	508	522
Grp Sat Flow(s),veh/h/ln	1341	0	1593	1781	0	1723	1781	1777	1846	477	1777	1825
Q Serve(g_s), s	30.4	0.0	30.4	7.4	0.0	2.9	17.6	28.6	28.6	19.9	34.3	34.3
Cycle Q Clear(g_c), s	30.4	0.0	30.4	7.4	0.0	2.9	17.6	28.6	28.6	22.6	34.3	34.3
Prop In Lane	1.00		0.97	1.00		0.48	1.00		0.07	1.00		0.14
Lane Grp Cap(c), veh/h	400	0	404	170	0	603	322	894	929	186	509	523
V/C Ratio(X)	1.01	0.00	2.02	0.93	0.00	0.10	1.66	0.64	0.64	0.47	1.00	1.00
Avail Cap(c_a), veh/h	400	0	404	170	0	603	322	894	929	186	509	523
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.1	0.0	44.8	34.9	0.0	26.3	37.1	21.9	21.9	39.8	42.8	42.8
Incr Delay (d2), s/veh	47.6	0.0	466.3	49.4	0.0	0.1	310.2	1.7	1.6	2.2	39.2	38.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.0	0.0	63.6	5.7	0.0	1.2	37.2	11.9	12.4	2.4	19.8	20.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	94.7	0.0	511.1	84.3	0.0	26.4	347.4	23.6	23.6	42.0	82.0	81.4
LnGrp LOS	F	A	F	F	A	C	F	C	C	D	F	F
Approach Vol, veh/h		1218			219			1709			1118	
Approach Delay, s/veh		373.0			68.2			124.7			78.6	
Approach LOS		F			E			F			E	

Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		71.1	11.6	37.3	26.0	45.1		48.9				
Change Period (Y+Rc), s		10.7	* 4.2	* 6.9	* 8.4	10.7		* 6.9				
Max Green Setting (Gmax), s		60.4	* 7.4	* 30	* 18	34.4		* 42				
Max Q Clear Time (g_c+I1), s		30.6	9.4	32.4	19.6	36.3		4.9				
Green Ext Time (p_c), s		11.0	0.0	0.0	0.0	0.0		0.4				

Intersection Summary	
HCM 6th Ctrl Delay	180.6
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	10	316	151	60	16	685	528	41	71	865	332
Future Volume (vph)	92	10	316	151	60	16	685	528	41	71	865	332
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		55			25			35			50	
Link Distance (ft)		2226			2912			2436			1839	
Travel Time (s)		27.6			79.4			47.5			25.1	
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		7.0	25.0		23.3	23.3	
Minimum Split (s)	20.0	20.0		11.5	48.9		15.4	35.7		35.7	35.7	
Total Split (s)	30.8	30.8		18.1	48.9		46.0	101.1		55.1	55.1	
Total Split (%)	20.5%	20.5%		12.1%	32.6%		30.7%	67.4%		36.7%	36.7%	
Yellow Time (s)	5.6	5.6		3.0	5.6		3.0	5.2		5.2	5.2	
All-Red Time (s)	1.3	1.3		1.2	1.3		5.4	5.5		5.5	5.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.9	6.9		4.2	6.9		8.4	10.7		10.7	10.7	
Lead/Lag	Lag	Lag		Lead			Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 142.8
Natural Cycle: 150
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Gender Road & Winchester Pike

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	10	316	151	60	16	685	528	41	71	865	332
Future Volume (veh/h)	92	10	316	151	60	16	685	528	41	71	865	332
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	100	11	343	164	65	17	745	574	45	77	940	361
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	259	8	247	206	395	103	497	2022	158	287	748	285
Arrive On Green	0.16	0.16	0.16	0.09	0.28	0.28	0.25	0.61	0.61	0.30	0.30	0.30
Sat Flow, veh/h	1316	49	1543	1781	1429	374	1781	3339	261	804	2516	959
Grp Volume(v), veh/h	100	0	354	164	0	82	745	305	314	77	662	639
Grp Sat Flow(s),veh/h/ln	1316	0	1593	1781	0	1803	1781	1777	1823	804	1777	1698
Q Serve(g_s), s	10.3	0.0	23.9	11.2	0.0	5.1	37.6	12.2	12.3	11.1	44.4	44.4
Cycle Q Clear(g_c), s	10.3	0.0	23.9	11.2	0.0	5.1	37.6	12.2	12.3	11.1	44.4	44.4
Prop In Lane	1.00		0.97	1.00		0.21	1.00		0.14	1.00		0.56
Lane Grp Cap(c), veh/h	259	0	255	206	0	499	497	1076	1104	287	528	505
V/C Ratio(X)	0.39	0.00	1.39	0.80	0.00	0.16	1.50	0.28	0.28	0.27	1.25	1.27
Avail Cap(c_a), veh/h	259	0	255	214	0	507	497	1076	1104	287	528	505
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.0	0.0	62.7	47.0	0.0	40.9	47.7	14.0	14.0	40.8	52.5	52.5
Incr Delay (d2), s/veh	1.2	0.0	197.2	18.9	0.0	0.2	235.2	0.2	0.2	0.6	128.6	134.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	0.0	23.3	6.1	0.0	2.4	50.9	4.9	5.1	2.2	37.9	37.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.2	0.0	259.9	65.9	0.0	41.1	282.9	14.2	14.2	41.4	181.1	187.2
LnGrp LOS	E	A	F	E	A	D	F	B	B	D	F	F
Approach Vol, veh/h		454			246			1364			1378	
Approach Delay, s/veh		215.5			57.6			160.9			176.1	
Approach LOS		F			E			F			F	

Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		101.1	17.4	30.8	46.0	55.1		48.2				
Change Period (Y+Rc), s		10.7	* 4.2	* 6.9	* 8.4	10.7		* 6.9				
Max Green Setting (Gmax), s		90.4	* 14	* 24	* 38	44.4		* 42				
Max Q Clear Time (g_c+I1), s		14.3	13.2	25.9	39.6	46.4		7.1				
Green Ext Time (p_c), s		5.2	0.0	0.0	0.0	0.0		0.6				

Intersection Summary												
HCM 6th Ctrl Delay			166.8									
HCM 6th LOS			F									

Notes

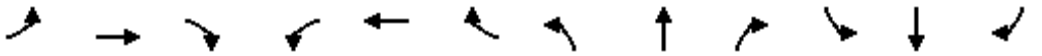
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	372	25	724	145	29	27	491	1041	40	81	881	66
Future Volume (vph)	372	25	724	145	29	27	491	1041	40	81	881	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		55			25			35			50	
Link Distance (ft)		2226			2912			2436			1839	
Travel Time (s)		27.6			79.4			47.5			25.1	
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		7.0	25.0		23.3	23.3	
Minimum Split (s)	20.0	20.0		11.5	48.9		15.4	35.7		35.7	35.7	
Total Split (s)	44.0	44.0		12.0	56.0		40.0	94.0		54.0	54.0	
Total Split (%)	29.3%	29.3%		8.0%	37.3%		26.7%	62.7%		36.0%	36.0%	
Yellow Time (s)	5.6	5.6		3.0	5.6		3.0	5.2		5.2	5.2	
All-Red Time (s)	1.3	1.3		1.2	1.3		5.4	5.5		5.5	5.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.9	6.9		4.2	6.9		8.4	10.7		10.7	10.7	
Lead/Lag	Lag	Lag		Lead			Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Natural Cycle: 150
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Gender Road & Winchester Pike



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	372	25	724	145	29	27	491	1041	40	81	881	66
Future Volume (veh/h)	372	25	724	145	29	27	491	1041	40	81	881	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	404	27	787	158	32	29	534	1132	43	88	958	72
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	380	13	381	141	296	268	425	1939	74	186	967	73
Arrive On Green	0.25	0.25	0.25	0.05	0.33	0.33	0.21	0.56	0.56	0.29	0.29	0.29
Sat Flow, veh/h	1341	53	1540	1781	904	819	1781	3491	133	477	3350	252
Grp Volume(v), veh/h	404	0	814	158	0	61	534	576	599	88	508	522
Grp Sat Flow(s),veh/h/ln	1341	0	1593	1781	0	1723	1781	1777	1846	477	1777	1825
Q Serve(g_s), s	37.1	0.0	37.1	7.8	0.0	3.7	31.6	32.0	32.0	24.1	42.7	42.7
Cycle Q Clear(g_c), s	37.1	0.0	37.1	7.8	0.0	3.7	31.6	32.0	32.0	24.1	42.7	42.7
Prop In Lane	1.00		0.97	1.00		0.48	1.00		0.07	1.00		0.14
Lane Grp Cap(c), veh/h	380	0	394	141	0	564	425	987	1025	186	513	527
V/C Ratio(X)	1.06	0.00	2.07	1.12	0.00	0.11	1.26	0.58	0.58	0.47	0.99	0.99
Avail Cap(c_a), veh/h	380	0	394	141	0	564	425	987	1025	186	513	527
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.8	0.0	56.5	46.7	0.0	35.2	48.7	21.9	21.9	46.5	53.1	53.1
Incr Delay (d2), s/veh	64.1	0.0	488.3	112.9	0.0	0.1	133.0	1.0	0.9	2.3	37.2	36.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	21.0	0.0	67.8	6.0	0.0	1.6	31.7	13.4	13.9	2.9	23.7	24.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	122.9	0.0	544.8	159.6	0.0	35.3	181.7	22.9	22.9	48.8	90.4	89.9
LnGrp LOS	F	A	F	F	A	D	F	C	C	D	F	F
Approach Vol, veh/h		1218			219			1709			1118	
Approach Delay, s/veh		404.8			125.0			72.5			86.9	
Approach LOS		F			F			E			F	

Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		94.0	12.0	44.0	40.0	54.0		56.0				
Change Period (Y+Rc), s		10.7	* 4.2	* 6.9	* 8.4	10.7		* 6.9				
Max Green Setting (Gmax), s		83.3	* 7.8	* 37	* 32	43.3		* 49				
Max Q Clear Time (g_c+I1), s		34.0	9.8	39.1	33.6	44.7		5.7				
Green Ext Time (p_c), s		12.7	0.0	0.0	0.0	0.0		0.5				

Intersection Summary												
HCM 6th Ctrl Delay			173.9									
HCM 6th LOS			F									

Notes

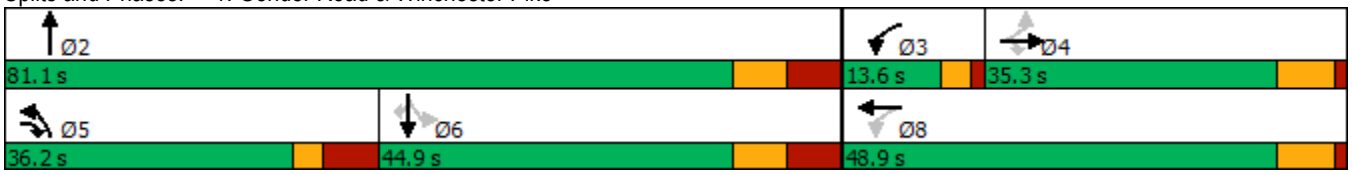
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

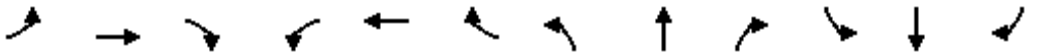
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	10	316	151	60	16	685	528	41	71	865	332
Future Volume (vph)	92	10	316	151	60	16	685	528	41	71	865	332
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	1		2	1		0	2		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		55			25			35			50	
Link Distance (ft)		2226			2912			2436			1839	
Travel Time (s)		27.6			79.4			47.5			25.1	
Turn Type	Perm	NA	pm+ov	pm+pt	NA		Prot	NA		Perm	NA	Perm
Protected Phases		4	5	3	8		5	2			6	
Permitted Phases	4		4	8						6		6
Detector Phase	4	4	5	3	8		5	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	7.0	7.0	10.0		7.0	25.0		23.3	23.3	23.3
Minimum Split (s)	20.0	20.0	15.4	11.5	48.9		15.4	35.7		35.7	35.7	35.7
Total Split (s)	35.3	35.3	36.2	13.6	48.9		36.2	81.1		44.9	44.9	44.9
Total Split (%)	27.2%	27.2%	27.8%	10.5%	37.6%		27.8%	62.4%		34.5%	34.5%	34.5%
Yellow Time (s)	5.6	5.6	3.0	3.0	5.6		3.0	5.2		5.2	5.2	5.2
All-Red Time (s)	1.3	1.3	5.4	1.2	1.3		5.4	5.5		5.5	5.5	5.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.9	6.9	8.4	4.2	6.9		8.4	10.7		10.7	10.7	10.7
Lead/Lag	Lag	Lag	Lead	Lead			Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	Min		Min	Min	Min

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 116.7
Natural Cycle: 130
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Gender Road & Winchester Pike





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	10	316	151	60	16	685	528	41	71	865	332
Future Volume (veh/h)	92	10	316	151	60	16	685	528	41	71	865	332
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	100	11	343	164	65	17	745	574	45	77	940	361
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	228	234	1004	333	349	91	811	2006	157	298	1039	464
Arrive On Green	0.13	0.13	0.13	0.08	0.24	0.24	0.23	0.60	0.60	0.29	0.29	0.29
Sat Flow, veh/h	1316	1870	2790	1781	1429	374	3456	3339	261	804	3554	1585
Grp Volume(v), veh/h	100	11	343	164	0	82	745	305	314	77	940	361
Grp Sat Flow(s),veh/h/ln	1316	1870	1395	1781	0	1803	1728	1777	1823	804	1777	1585
Q Serve(g_s), s	8.2	0.6	10.2	8.9	0.0	4.1	23.9	9.4	9.5	8.5	29.0	23.8
Cycle Q Clear(g_c), s	8.2	0.6	10.2	8.9	0.0	4.1	23.9	9.4	9.5	8.5	29.0	23.8
Prop In Lane	1.00		1.00	1.00		0.21	1.00		0.14	1.00		1.00
Lane Grp Cap(c), veh/h	228	234	1004	333	0	441	811	1068	1096	298	1039	464
V/C Ratio(X)	0.44	0.05	0.34	0.49	0.00	0.19	0.92	0.29	0.29	0.26	0.90	0.78
Avail Cap(c_a), veh/h	392	466	1351	333	0	665	844	1099	1127	305	1067	476
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.2	43.8	26.6	37.7	0.0	34.0	42.5	10.9	11.0	31.5	38.8	36.9
Incr Delay (d2), s/veh	1.7	0.1	0.3	1.4	0.0	0.3	14.8	0.2	0.2	0.5	10.8	8.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.3	3.5	4.1	0.0	1.9	11.7	3.6	3.7	1.6	13.4	9.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.9	43.9	26.9	39.1	0.0	34.3	57.3	11.1	11.1	32.1	49.5	45.0
LnGrp LOS	D	D	C	D	A	C	E	B	B	C	D	D
Approach Vol, veh/h		454			246			1364			1378	
Approach Delay, s/veh		32.1			37.5			36.4			47.4	
Approach LOS		C			D			D			D	

Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		79.1	13.6	21.1	35.1	44.0		34.7				
Change Period (Y+Rc), s		10.7	* 4.2	* 6.9	* 8.4	10.7		* 6.9				
Max Green Setting (Gmax), s		70.4	* 9.4	* 28	* 28	34.2		* 42				
Max Q Clear Time (g_c+I1), s		11.5	10.9	12.2	25.9	31.0		6.1				
Green Ext Time (p_c), s		5.1	0.0	2.0	0.8	2.3		0.6				

Intersection Summary	
HCM 6th Ctrl Delay	40.3
HCM 6th LOS	D

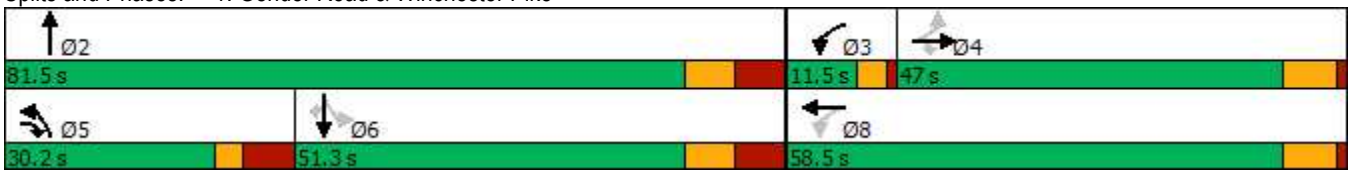
Notes

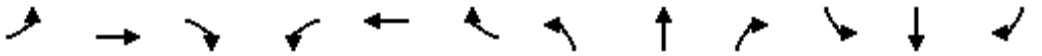
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	372	25	724	145	29	27	491	1041	40	81	881	66
Future Volume (vph)	372	25	724	145	29	27	491	1041	40	81	881	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	1		2	1		0	2		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		55			25			35			50	
Link Distance (ft)		2226			2912			2436			1839	
Travel Time (s)		27.6			79.4			47.5			25.1	
Turn Type	Perm	NA	pm+ov	pm+pt	NA		Prot	NA		Perm	NA	Perm
Protected Phases		4	5	3	8		5	2			6	
Permitted Phases	4		4	8						6		6
Detector Phase	4	4	5	3	8		5	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	7.0	7.0	10.0		7.0	25.0		23.3	23.3	23.3
Minimum Split (s)	20.0	20.0	15.4	11.5	48.9		15.4	35.7		35.7	35.7	35.7
Total Split (s)	47.0	47.0	30.2	11.5	58.5		30.2	81.5		51.3	51.3	51.3
Total Split (%)	33.6%	33.6%	21.6%	8.2%	41.8%		21.6%	58.2%		36.6%	36.6%	36.6%
Yellow Time (s)	5.6	5.6	3.0	3.0	5.6		3.0	5.2		5.2	5.2	5.2
All-Red Time (s)	1.3	1.3	5.4	1.2	1.3		5.4	5.5		5.5	5.5	5.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.9	6.9	8.4	4.2	6.9		8.4	10.7		10.7	10.7	10.7
Lead/Lag	Lag	Lag	Lead	Lead			Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	Min		Min	Min	Min

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 139.5	
Natural Cycle: 140	
Control Type: Semi Act-Uncoord	

Splits and Phases: 1: Gender Road & Winchester Pike





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	372	25	724	145	29	27	491	1041	40	81	881	66
Future Volume (veh/h)	372	25	724	145	29	27	491	1041	40	81	881	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	404	27	787	158	32	29	534	1132	43	88	958	72
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	437	538	1238	331	334	303	540	1758	67	178	1020	455
Arrive On Green	0.29	0.29	0.29	0.05	0.37	0.37	0.16	0.50	0.50	0.29	0.29	0.29
Sat Flow, veh/h	1341	1870	2790	1781	904	819	3456	3491	133	477	3554	1585
Grp Volume(v), veh/h	404	27	787	158	0	61	534	576	599	88	958	72
Grp Sat Flow(s),veh/h/ln	1341	1870	1395	1781	0	1723	1728	1777	1846	477	1777	1585
Q Serve(g_s), s	40.1	1.5	30.5	7.3	0.0	3.2	21.5	33.2	33.2	23.1	36.7	4.7
Cycle Q Clear(g_c), s	40.1	1.5	30.5	7.3	0.0	3.2	21.5	33.2	33.2	26.2	36.7	4.7
Prop In Lane	1.00		1.00	1.00		0.48	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	437	538	1238	331	0	638	540	895	930	178	1020	455
V/C Ratio(X)	0.92	0.05	0.64	0.48	0.00	0.10	0.99	0.64	0.64	0.49	0.94	0.16
Avail Cap(c_a), veh/h	437	538	1238	331	0	638	540	902	938	180	1035	462
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.6	35.9	30.0	32.6	0.0	28.7	58.7	25.4	25.4	46.1	48.5	37.1
Incr Delay (d2), s/veh	25.4	0.0	1.2	1.4	0.0	0.1	35.6	1.7	1.6	2.5	15.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.7	0.7	10.5	0.6	0.0	1.4	12.0	14.1	14.7	2.8	17.8	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	76.0	36.0	31.2	34.0	0.0	28.8	94.3	27.1	27.0	48.7	64.0	37.3
LnGrp LOS	E	D	C	C	A	C	F	C	C	D	E	D
Approach Vol, veh/h		1218			219			1709			1118	
Approach Delay, s/veh		46.2			32.5			48.1			61.0	
Approach LOS		D			C			D			E	

Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		80.9	11.5	47.0	30.2	50.7		58.5				
Change Period (Y+Rc), s		10.7	* 4.2	* 6.9	* 8.4	10.7		* 6.9				
Max Green Setting (Gmax), s		70.8	* 7.3	* 40	* 22	40.6		* 52				
Max Q Clear Time (g_c+I1), s		35.2	9.3	42.1	23.5	38.7		5.2				
Green Ext Time (p_c), s		11.7	0.0	0.0	0.0	1.3		0.5				

Intersection Summary	
HCM 6th Ctrl Delay	50.1
HCM 6th LOS	D

Notes

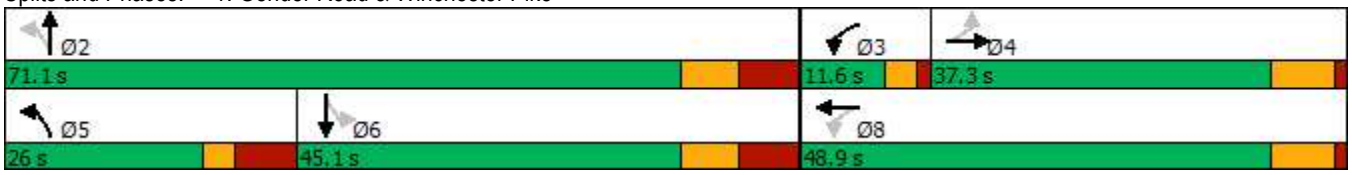
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

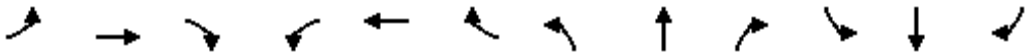
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	11	332	159	66	16	707	610	47	72	996	378
Future Volume (vph)	101	11	332	159	66	16	707	610	47	72	996	378
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		55			25			35			50	
Link Distance (ft)		2226			2912			2436			1839	
Travel Time (s)		27.6			79.4			47.5			25.1	
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		7.0	25.0		23.3	23.3	
Minimum Split (s)	20.0	20.0		11.5	48.9		15.4	35.7		35.7	35.7	
Total Split (s)	37.3	37.3		11.6	48.9		26.0	71.1		45.1	45.1	
Total Split (%)	31.1%	31.1%		9.7%	40.8%		21.7%	59.3%		37.6%	37.6%	
Yellow Time (s)	5.6	5.6		3.0	5.6		3.0	5.2		5.2	5.2	
All-Red Time (s)	1.3	1.3		1.2	1.3		5.4	5.5		5.5	5.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.9	6.9		4.2	6.9		8.4	10.7		10.7	10.7	
Lead/Lag	Lag	Lag		Lead			Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 105.3
Natural Cycle: 150
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Gender Road & Winchester Pike





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	101	11	332	159	66	16	707	610	47	72	996	378
Future Volume (veh/h)	101	11	332	159	66	16	707	610	47	72	996	378
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	110	12	361	173	72	17	768	663	51	78	1083	411
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	386	13	384	191	507	120	323	1693	130	273	730	272
Arrive On Green	0.25	0.25	0.25	0.06	0.35	0.35	0.15	0.51	0.51	0.29	0.29	0.29
Sat Flow, veh/h	1308	51	1542	1781	1463	345	1781	3344	257	736	2533	944
Grp Volume(v), veh/h	110	0	373	173	0	89	768	352	362	78	754	740
Grp Sat Flow(s),veh/h/ln	1308	0	1593	1781	0	1808	1781	1777	1824	736	1777	1700
Q Serve(g_s), s	8.2	0.0	27.4	7.4	0.0	4.0	17.6	14.6	14.6	10.1	34.4	34.4
Cycle Q Clear(g_c), s	8.2	0.0	27.4	7.4	0.0	4.0	17.6	14.6	14.6	10.1	34.4	34.4
Prop In Lane	1.00		0.97	1.00		0.19	1.00		0.14	1.00		0.56
Lane Grp Cap(c), veh/h	386	0	397	191	0	626	323	899	923	273	512	490
V/C Ratio(X)	0.28	0.00	0.94	0.91	0.00	0.14	2.38	0.39	0.39	0.29	1.47	1.51
Avail Cap(c_a), veh/h	394	0	406	191	0	636	323	899	923	273	512	490
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.7	0.0	43.9	36.9	0.0	26.8	37.0	18.1	18.2	33.8	42.5	42.5
Incr Delay (d2), s/veh	0.5	0.0	29.8	40.8	0.0	0.1	629.2	0.3	0.3	0.7	222.5	240.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	13.5	3.8	0.0	1.8	66.0	5.9	6.1	1.8	45.9	46.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.2	0.0	73.7	77.7	0.0	26.9	666.2	18.5	18.5	34.5	264.9	282.6
LnGrp LOS	D	A	E	E	A	C	F	B	B	C	F	F
Approach Vol, veh/h		483			262			1482			1572	
Approach Delay, s/veh		65.4			60.4			354.2			261.8	
Approach LOS		E			E			F			F	

Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		71.1	11.6	36.6	26.0	45.1		48.2				
Change Period (Y+Rc), s		10.7	* 4.2	* 6.9	* 8.4	10.7		* 6.9				
Max Green Setting (Gmax), s		60.4	* 7.4	* 30	* 18	34.4		* 42				
Max Q Clear Time (g_c+I1), s		16.6	9.4	29.4	19.6	36.4		6.0				
Green Ext Time (p_c), s		6.1	0.0	0.3	0.0	0.0		0.7				

Intersection Summary												
HCM 6th Ctrl Delay			259.0									
HCM 6th LOS			F									

Notes

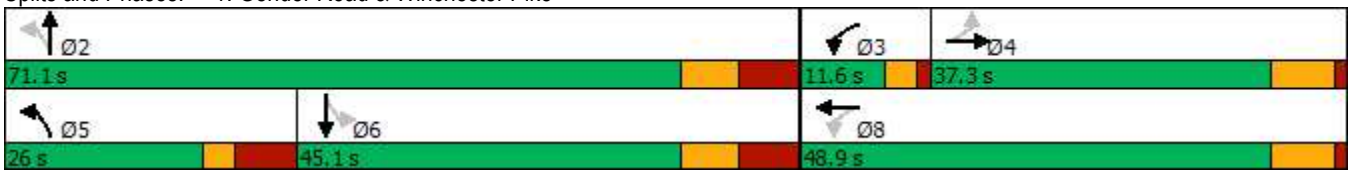
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

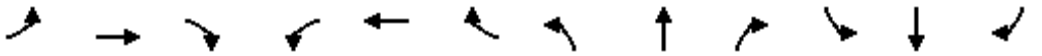
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	426	29	760	152	32	28	521	1205	46	83	1012	75
Future Volume (vph)	426	29	760	152	32	28	521	1205	46	83	1012	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		55			25			35			50	
Link Distance (ft)		2226			2912			2436			1839	
Travel Time (s)		27.6			79.4			47.5			25.1	
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		7.0	25.0		23.3	23.3	
Minimum Split (s)	20.0	20.0		11.5	48.9		15.4	35.7		35.7	35.7	
Total Split (s)	37.3	37.3		11.6	48.9		26.0	71.1		45.1	45.1	
Total Split (%)	31.1%	31.1%		9.7%	40.8%		21.7%	59.3%		37.6%	37.6%	
Yellow Time (s)	5.6	5.6		3.0	5.6		3.0	5.2		5.2	5.2	
All-Red Time (s)	1.3	1.3		1.2	1.3		5.4	5.5		5.5	5.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.9	6.9		4.2	6.9		8.4	10.7		10.7	10.7	
Lead/Lag	Lag	Lag		Lead			Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Natural Cycle: 150
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Gender Road & Winchester Pike





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	426	29	760	152	32	28	521	1205	46	83	1012	75
Future Volume (veh/h)	426	29	760	152	32	28	521	1205	46	83	1012	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	463	32	826	165	35	30	566	1310	50	90	1100	82
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	399	15	389	170	325	279	321	1757	67	142	961	72
Arrive On Green	0.25	0.25	0.25	0.06	0.35	0.35	0.15	0.50	0.50	0.29	0.29	0.29
Sat Flow, veh/h	1337	59	1535	1781	930	797	1781	3490	133	400	3352	250
Grp Volume(v), veh/h	463	0	858	165	0	65	566	666	694	90	583	599
Grp Sat Flow(s),veh/h/ln	1337	0	1594	1781	0	1727	1781	1777	1846	400	1777	1825
Q Serve(g_s), s	30.4	0.0	30.4	7.4	0.0	3.1	17.6	35.8	35.9	24.5	34.4	34.4
Cycle Q Clear(g_c), s	30.4	0.0	30.4	7.4	0.0	3.1	17.6	35.8	35.9	34.4	34.4	34.4
Prop In Lane	1.00		0.96	1.00		0.46	1.00		0.07	1.00		0.14
Lane Grp Cap(c), veh/h	399	0	404	170	0	604	321	894	929	142	509	523
V/C Ratio(X)	1.16	0.00	2.12	0.97	0.00	0.11	1.76	0.74	0.75	0.63	1.14	1.15
Avail Cap(c_a), veh/h	399	0	404	170	0	604	321	894	929	142	509	523
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.1	0.0	44.8	36.0	0.0	26.3	37.2	23.7	23.7	48.9	42.8	42.8
Incr Delay (d2), s/veh	97.0	0.0	514.3	60.5	0.0	0.1	355.3	3.6	3.5	9.6	86.0	86.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	22.4	0.0	69.0	6.4	0.0	1.3	41.2	15.2	15.8	3.0	26.4	27.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	144.1	0.0	559.1	96.5	0.0	26.4	392.6	27.2	27.2	58.4	128.8	128.8
LnGrp LOS	F	A	F	F	A	C	F	C	C	E	F	F
Approach Vol, veh/h		1321			230			1926			1272	
Approach Delay, s/veh		413.7			76.7			134.6			123.8	
Approach LOS		F			E			F			F	

Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		71.1	11.6	37.3	26.0	45.1		48.9				
Change Period (Y+Rc), s		10.7	* 4.2	* 6.9	* 8.4	10.7		* 6.9				
Max Green Setting (Gmax), s		60.4	* 7.4	* 30	* 18	34.4		* 42				
Max Q Clear Time (g_c+I1), s		37.9	9.4	32.4	19.6	36.4		5.1				
Green Ext Time (p_c), s		11.8	0.0	0.0	0.0	0.0		0.5				

Intersection Summary		
HCM 6th Ctrl Delay		206.5
HCM 6th LOS		F

Notes

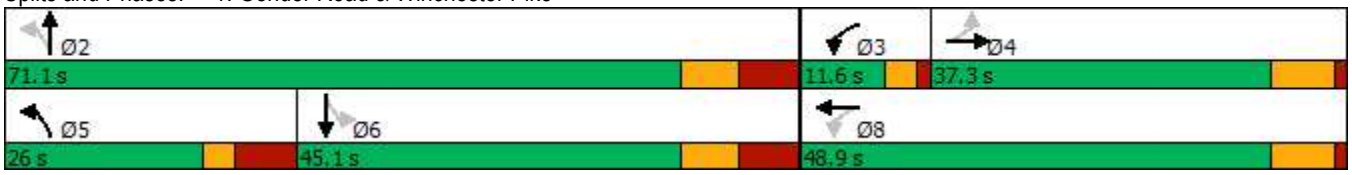
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	11	347	159	66	16	759	610	47	72	996	378
Future Volume (vph)	101	11	347	159	66	16	759	610	47	72	996	378
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		55			25			35			50	
Link Distance (ft)		2226			2912			2436			1839	
Travel Time (s)		27.6			79.4			47.5			25.1	
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		7.0	25.0		23.3	23.3	
Minimum Split (s)	20.0	20.0		11.5	48.9		15.4	35.7		35.7	35.7	
Total Split (s)	37.3	37.3		11.6	48.9		26.0	71.1		45.1	45.1	
Total Split (%)	31.1%	31.1%		9.7%	40.8%		21.7%	59.3%		37.6%	37.6%	
Yellow Time (s)	5.6	5.6		3.0	5.6		3.0	5.2		5.2	5.2	
All-Red Time (s)	1.3	1.3		1.2	1.3		5.4	5.5		5.5	5.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.9	6.9		4.2	6.9		8.4	10.7		10.7	10.7	
Lead/Lag	Lag	Lag		Lead			Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 105.3
Natural Cycle: 150
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Gender Road & Winchester Pike



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	101	11	347	159	66	16	759	610	47	72	996	378
Future Volume (veh/h)	101	11	347	159	66	16	759	610	47	72	996	378
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	110	12	377	173	72	17	825	663	51	78	1083	411
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	391	12	391	182	512	121	321	1683	129	271	726	271
Arrive On Green	0.25	0.25	0.25	0.06	0.35	0.35	0.15	0.50	0.50	0.29	0.29	0.29
Sat Flow, veh/h	1308	49	1543	1781	1463	345	1781	3344	257	736	2533	944
Grp Volume(v), veh/h	110	0	389	173	0	89	825	352	362	78	754	740
Grp Sat Flow(s),veh/h/ln	1308	0	1593	1781	0	1808	1781	1777	1824	736	1777	1700
Q Serve(g_s), s	8.2	0.0	29.0	7.4	0.0	4.0	17.6	14.7	14.8	10.1	34.4	34.4
Cycle Q Clear(g_c), s	8.2	0.0	29.0	7.4	0.0	4.0	17.6	14.7	14.8	10.1	34.4	34.4
Prop In Lane	1.00		0.97	1.00		0.19	1.00		0.14	1.00		0.56
Lane Grp Cap(c), veh/h	391	0	403	182	0	633	321	894	918	271	509	487
V/C Ratio(X)	0.28	0.00	0.96	0.95	0.00	0.14	2.57	0.39	0.39	0.29	1.48	1.52
Avail Cap(c_a), veh/h	391	0	403	182	0	633	321	894	918	271	509	487
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.5	0.0	44.3	37.0	0.0	26.7	37.2	18.5	18.5	34.1	42.8	42.8
Incr Delay (d2), s/veh	0.5	0.0	35.5	52.9	0.0	0.1	714.7	0.3	0.3	0.7	226.1	243.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	14.7	4.3	0.0	1.8	73.3	6.0	6.2	1.8	46.3	46.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.0	0.0	79.8	89.9	0.0	26.8	751.9	18.8	18.8	34.8	268.9	286.7
LnGrp LOS	D	A	E	F	A	C	F	B	B	C	F	F
Approach Vol, veh/h		499			262			1539			1572	
Approach Delay, s/veh		70.4			68.5			411.8			265.7	
Approach LOS		E			E			F			F	

Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		71.1	11.6	37.3	26.0	45.1		48.9				
Change Period (Y+Rc), s		10.7	* 4.2	* 6.9	* 8.4	10.7		* 6.9				
Max Green Setting (Gmax), s		60.4	* 7.4	* 30	* 18	34.4		* 42				
Max Q Clear Time (g_c+I1), s		16.8	9.4	31.0	19.6	36.4		6.0				
Green Ext Time (p_c), s		6.1	0.0	0.0	0.0	0.0		0.7				

Intersection Summary		
HCM 6th Ctrl Delay		285.2
HCM 6th LOS		F

Notes

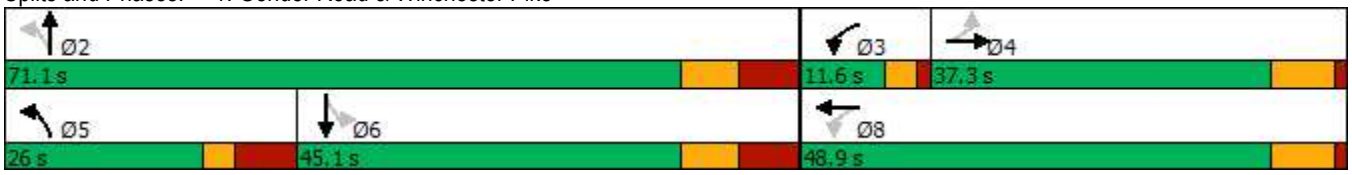
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

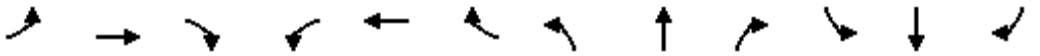
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	426	29	811	152	32	28	540	1205	46	83	1012	75
Future Volume (vph)	426	29	811	152	32	28	540	1205	46	83	1012	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		55			25			35			50	
Link Distance (ft)		2226			2912			2436			1839	
Travel Time (s)		27.6			79.4			47.5			25.1	
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		7.0	25.0		23.3	23.3	
Minimum Split (s)	20.0	20.0		11.5	48.9		15.4	35.7		35.7	35.7	
Total Split (s)	37.3	37.3		11.6	48.9		26.0	71.1		45.1	45.1	
Total Split (%)	31.1%	31.1%		9.7%	40.8%		21.7%	59.3%		37.6%	37.6%	
Yellow Time (s)	5.6	5.6		3.0	5.6		3.0	5.2		5.2	5.2	
All-Red Time (s)	1.3	1.3		1.2	1.3		5.4	5.5		5.5	5.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.9	6.9		4.2	6.9		8.4	10.7		10.7	10.7	
Lead/Lag	Lag	Lag		Lead			Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Natural Cycle: 150
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Gender Road & Winchester Pike





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	426	29	811	152	32	28	540	1205	46	83	1012	75
Future Volume (veh/h)	426	29	811	152	32	28	540	1205	46	83	1012	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	463	32	882	165	35	30	587	1310	50	90	1100	82
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	399	14	390	170	325	279	321	1757	67	142	961	72
Arrive On Green	0.25	0.25	0.25	0.06	0.35	0.35	0.15	0.50	0.50	0.29	0.29	0.29
Sat Flow, veh/h	1337	56	1538	1781	930	797	1781	3490	133	400	3352	250
Grp Volume(v), veh/h	463	0	914	165	0	65	587	666	694	90	583	599
Grp Sat Flow(s),veh/h/ln	1337	0	1594	1781	0	1727	1781	1777	1846	400	1777	1825
Q Serve(g_s), s	30.4	0.0	30.4	7.4	0.0	3.1	17.6	35.8	35.9	24.5	34.4	34.4
Cycle Q Clear(g_c), s	30.4	0.0	30.4	7.4	0.0	3.1	17.6	35.8	35.9	34.4	34.4	34.4
Prop In Lane	1.00		0.96	1.00		0.46	1.00		0.07	1.00		0.14
Lane Grp Cap(c), veh/h	399	0	404	170	0	604	321	894	929	142	509	523
V/C Ratio(X)	1.16	0.00	2.26	0.97	0.00	0.11	1.83	0.74	0.75	0.63	1.14	1.15
Avail Cap(c_a), veh/h	399	0	404	170	0	604	321	894	929	142	509	523
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.1	0.0	44.8	36.0	0.0	26.3	37.2	23.7	23.7	48.9	42.8	42.8
Incr Delay (d2), s/veh	97.0	0.0	576.7	60.5	0.0	0.1	384.2	3.6	3.5	9.6	86.0	86.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	22.4	0.0	76.0	6.4	0.0	1.3	43.8	15.2	15.8	3.0	26.4	27.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	144.1	0.0	621.5	96.5	0.0	26.4	421.5	27.2	27.2	58.4	128.8	128.8
LnGrp LOS	F	A	F	F	A	C	F	C	C	E	F	F
Approach Vol, veh/h		1377			230			1947			1272	
Approach Delay, s/veh		461.0			76.7			146.1			123.8	
Approach LOS		F			E			F			F	

Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		71.1	11.6	37.3	26.0	45.1		48.9				
Change Period (Y+Rc), s		10.7	* 4.2	* 6.9	* 8.4	10.7		* 6.9				
Max Green Setting (Gmax), s		60.4	* 7.4	* 30	* 18	34.4		* 42				
Max Q Clear Time (g_c+I1), s		37.9	9.4	32.4	19.6	36.4		5.1				
Green Ext Time (p_c), s		11.8	0.0	0.0	0.0	0.0		0.5				

Intersection Summary	
HCM 6th Ctrl Delay	226.7
HCM 6th LOS	F

Notes

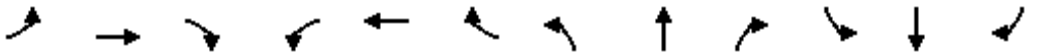
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	11	347	159	66	16	759	610	47	72	996	378
Future Volume (vph)	101	11	347	159	66	16	759	610	47	72	996	378
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		55			25			35			50	
Link Distance (ft)		2226			2912			2436			1839	
Travel Time (s)		27.6			79.4			47.5			25.1	
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		7.0	25.0		23.3	23.3	
Minimum Split (s)	20.0	20.0		11.5	48.9		15.4	35.7		35.7	35.7	
Total Split (s)	30.3	30.3		18.6	48.9		45.0	101.1		56.1	56.1	
Total Split (%)	20.2%	20.2%		12.4%	32.6%		30.0%	67.4%		37.4%	37.4%	
Yellow Time (s)	5.6	5.6		3.0	5.6		3.0	5.2		5.2	5.2	
All-Red Time (s)	1.3	1.3		1.2	1.3		5.4	5.5		5.5	5.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.9	6.9		4.2	6.9		8.4	10.7		10.7	10.7	
Lead/Lag	Lag	Lag		Lead			Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 144.1
Natural Cycle: 150
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Gender Road & Winchester Pike



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	101	11	347	159	66	16	759	610	47	72	996	378
Future Volume (veh/h)	101	11	347	159	66	16	759	610	47	72	996	378
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	110	12	377	173	72	17	825	663	51	78	1083	411
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	253	8	242	214	406	96	484	2022	155	272	769	287
Arrive On Green	0.16	0.16	0.16	0.09	0.28	0.28	0.24	0.60	0.60	0.30	0.30	0.30
Sat Flow, veh/h	1308	49	1543	1781	1463	345	1781	3344	257	736	2533	944
Grp Volume(v), veh/h	110	0	389	173	0	89	825	352	362	78	754	740
Grp Sat Flow(s),veh/h/ln	1308	0	1593	1781	0	1808	1781	1777	1824	736	1777	1700
Q Serve(g_s), s	11.6	0.0	23.4	11.9	0.0	5.6	36.6	14.6	14.6	12.3	45.4	45.4
Cycle Q Clear(g_c), s	11.6	0.0	23.4	11.9	0.0	5.6	36.6	14.6	14.6	12.3	45.4	45.4
Prop In Lane	1.00		0.97	1.00		0.19	1.00		0.14	1.00		0.56
Lane Grp Cap(c), veh/h	253	0	249	214	0	502	484	1075	1103	272	540	516
V/C Ratio(X)	0.43	0.00	1.56	0.81	0.00	0.18	1.70	0.33	0.33	0.29	1.40	1.43
Avail Cap(c_a), veh/h	253	0	249	220	0	508	484	1075	1103	272	540	516
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.1	0.0	63.0	47.1	0.0	41.0	48.1	14.6	14.6	40.5	52.0	52.0
Incr Delay (d2), s/veh	1.5	0.0	270.9	20.2	0.0	0.2	325.3	0.2	0.2	0.7	189.4	206.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	27.9	6.5	0.0	2.6	61.8	5.9	6.1	2.2	47.9	48.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.6	0.0	333.9	67.3	0.0	41.3	373.4	14.8	14.8	41.2	241.5	258.1
LnGrp LOS	E	A	F	E	A	D	F	B	B	D	F	F
Approach Vol, veh/h		499			262			1539			1572	
Approach Delay, s/veh		273.4			58.5			207.0			239.4	
Approach LOS		F			E			F			F	

Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		101.1	18.1	30.3	45.0	56.1		48.4				
Change Period (Y+Rc), s		10.7	* 4.2	* 6.9	* 8.4	10.7		* 6.9				
Max Green Setting (Gmax), s		90.4	* 14	* 23	* 37	45.4		* 42				
Max Q Clear Time (g_c+I1), s		16.6	13.9	25.4	38.6	47.4		7.6				
Green Ext Time (p_c), s		6.2	0.0	0.0	0.0	0.0		0.6				

Intersection Summary	
HCM 6th Ctrl Delay	218.7
HCM 6th LOS	F

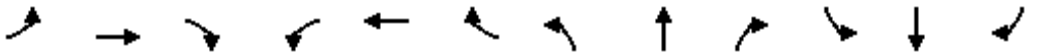
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	426	29	811	152	32	28	540	1205	46	83	1012	75
Future Volume (vph)	426	29	811	152	32	28	540	1205	46	83	1012	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		55			25			35			50	
Link Distance (ft)		2226			2912			2436			1839	
Travel Time (s)		27.6			79.4			47.5			25.1	
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		7.0	25.0		23.3	23.3	
Minimum Split (s)	20.0	20.0		11.5	48.9		15.4	35.7		35.7	35.7	
Total Split (s)	44.0	44.0		13.0	57.0		39.0	93.0		54.0	54.0	
Total Split (%)	29.3%	29.3%		8.7%	38.0%		26.0%	62.0%		36.0%	36.0%	
Yellow Time (s)	5.6	5.6		3.0	5.6		3.0	5.2		5.2	5.2	
All-Red Time (s)	1.3	1.3		1.2	1.3		5.4	5.5		5.5	5.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.9	6.9		4.2	6.9		8.4	10.7		10.7	10.7	
Lead/Lag	Lag	Lag		Lead			Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	

Intersection Summary	
Area Type:	Other
Cycle Length: 150	
Actuated Cycle Length: 150	
Natural Cycle: 150	
Control Type: Semi Act-Uncoord	

Splits and Phases: 1: Gender Road & Winchester Pike



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	426	29	811	152	32	28	540	1205	46	83	1012	75
Future Volume (veh/h)	426	29	811	152	32	28	540	1205	46	83	1012	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	463	32	882	165	35	30	587	1310	50	90	1100	82
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	379	14	380	153	311	266	411	1915	73	159	968	72
Arrive On Green	0.25	0.25	0.25	0.06	0.33	0.33	0.20	0.55	0.55	0.29	0.29	0.29
Sat Flow, veh/h	1337	56	1538	1781	930	797	1781	3490	133	400	3352	250
Grp Volume(v), veh/h	463	0	914	165	0	65	587	666	694	90	583	599
Grp Sat Flow(s),veh/h/ln	1337	0	1594	1781	0	1727	1781	1777	1846	400	1777	1825
Q Serve(g_s), s	37.1	0.0	37.1	8.8	0.0	3.9	30.6	40.6	40.7	31.5	43.3	43.3
Cycle Q Clear(g_c), s	37.1	0.0	37.1	8.8	0.0	3.9	30.6	40.6	40.7	33.2	43.3	43.3
Prop In Lane	1.00		0.96	1.00		0.46	1.00		0.07	1.00		0.14
Lane Grp Cap(c), veh/h	379	0	394	153	0	577	411	975	1013	159	513	527
V/C Ratio(X)	1.22	0.00	2.32	1.08	0.00	0.11	1.43	0.68	0.68	0.57	1.14	1.14
Avail Cap(c_a), veh/h	379	0	394	153	0	577	411	975	1013	159	513	527
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.8	0.0	56.5	45.2	0.0	34.6	49.3	24.4	24.5	50.6	53.3	53.4
Incr Delay (d2), s/veh	121.8	0.0	601.5	96.5	0.0	0.1	205.8	2.1	2.0	5.2	82.9	82.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	27.0	0.0	80.2	8.4	0.0	1.7	39.0	17.3	18.0	3.3	30.4	31.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	180.6	0.0	657.9	141.6	0.0	34.7	255.0	26.5	26.5	55.8	136.2	136.2
LnGrp LOS	F	A	F	F	A	C	F	C	C	E	F	F
Approach Vol, veh/h		1377			230			1947			1272	
Approach Delay, s/veh		497.4			111.4			95.4			130.5	
Approach LOS		F			F			F			F	

Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		93.0	13.0	44.0	39.0	54.0		57.0				
Change Period (Y+Rc), s		10.7	* 4.2	* 6.9	* 8.4	10.7		* 6.9				
Max Green Setting (Gmax), s		82.3	* 8.8	* 37	* 31	43.3		* 50				
Max Q Clear Time (g_c+I1), s		42.7	10.8	39.1	32.6	45.3		5.9				
Green Ext Time (p_c), s		15.3	0.0	0.0	0.0	0.0		0.5				

Intersection Summary	
HCM 6th Ctrl Delay	220.1
HCM 6th LOS	F

Notes

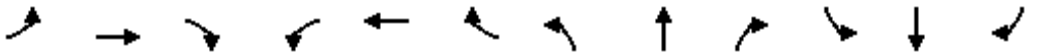
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	11	347	159	66	16	759	610	47	72	996	378
Future Volume (vph)	101	11	347	159	66	16	759	610	47	72	996	378
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	1		2	1		0	2		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		55			25			35			50	
Link Distance (ft)		2226			2912			2436			1839	
Travel Time (s)		27.6			79.4			47.5			25.1	
Turn Type	Perm	NA	pm+ov	pm+pt	NA		Prot	NA		Perm	NA	Perm
Protected Phases		4	5	3	8		5	2			6	
Permitted Phases	4		4	8						6		6
Detector Phase	4	4	5	3	8		5	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	7.0	7.0	10.0		7.0	25.0		23.3	23.3	23.3
Minimum Split (s)	20.0	20.0	15.4	11.5	48.9		15.4	35.7		35.7	35.7	35.7
Total Split (s)	32.5	32.5	44.0	16.4	48.9		44.0	101.1		57.1	57.1	57.1
Total Split (%)	21.7%	21.7%	29.3%	10.9%	32.6%		29.3%	67.4%		38.1%	38.1%	38.1%
Yellow Time (s)	5.6	5.6	3.0	3.0	5.6		3.0	5.2		5.2	5.2	5.2
All-Red Time (s)	1.3	1.3	5.4	1.2	1.3		5.4	5.5		5.5	5.5	5.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.9	6.9	8.4	4.2	6.9		8.4	10.7		10.7	10.7	10.7
Lead/Lag	Lag	Lag	Lead	Lead			Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	Min		Min	Min	Min

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 142.3
Natural Cycle: 150
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Gender Road & Winchester Pike



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	101	11	347	159	66	16	759	610	47	72	996	378
Future Volume (veh/h)	101	11	347	159	66	16	759	610	47	72	996	378
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	110	12	377	173	72	17	825	663	51	78	1083	411
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	214	233	1046	323	352	83	866	2123	163	290	1154	515
Arrive On Green	0.12	0.12	0.12	0.09	0.24	0.24	0.25	0.63	0.63	0.32	0.32	0.32
Sat Flow, veh/h	1308	1870	2790	1781	1463	345	3456	3344	257	736	3554	1585
Grp Volume(v), veh/h	110	12	377	173	0	89	825	352	362	78	1083	411
Grp Sat Flow(s),veh/h/ln	1308	1870	1395	1781	0	1808	1728	1777	1824	736	1777	1585
Q Serve(g_s), s	11.4	0.8	13.8	11.8	0.0	5.6	33.2	12.7	12.8	11.3	41.8	33.4
Cycle Q Clear(g_c), s	11.4	0.8	13.8	11.8	0.0	5.6	33.2	12.7	12.8	11.3	41.8	33.4
Prop In Lane	1.00		1.00	1.00		0.19	1.00		0.14	1.00		1.00
Lane Grp Cap(c), veh/h	214	233	1046	323	0	435	866	1128	1158	290	1154	515
V/C Ratio(X)	0.51	0.05	0.36	0.54	0.00	0.20	0.95	0.31	0.31	0.27	0.94	0.80
Avail Cap(c_a), veh/h	288	339	1205	323	0	538	871	1137	1167	293	1167	521
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.1	54.5	31.9	47.0	0.0	42.8	52.1	11.7	11.7	36.0	46.3	43.5
Incr Delay (d2), s/veh	2.5	0.1	0.3	2.1	0.0	0.3	19.9	0.2	0.2	0.6	14.1	8.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.4	4.8	5.5	0.0	2.6	16.6	5.0	5.1	2.0	19.9	13.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.6	54.6	32.2	49.1	0.0	43.1	72.0	11.9	11.9	36.6	60.4	52.2
LnGrp LOS	E	D	C	D	A	D	E	B	B	D	E	D
Approach Vol, veh/h		499			262			1539			1572	
Approach Delay, s/veh		39.2			47.1			44.2			57.1	
Approach LOS		D			D			D			E	

Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		100.4	16.4	24.5	43.8	56.6		40.9				
Change Period (Y+Rc), s		10.7	* 4.2	* 6.9	* 8.4	10.7		* 6.9				
Max Green Setting (Gmax), s		90.4	* 12	* 26	* 36	46.4		* 42				
Max Q Clear Time (g_c+I1), s		14.8	13.8	15.8	35.2	43.8		7.6				
Green Ext Time (p_c), s		6.2	0.0	1.8	0.2	2.1		0.6				

Intersection Summary												
HCM 6th Ctrl Delay			49.0									
HCM 6th LOS			D									

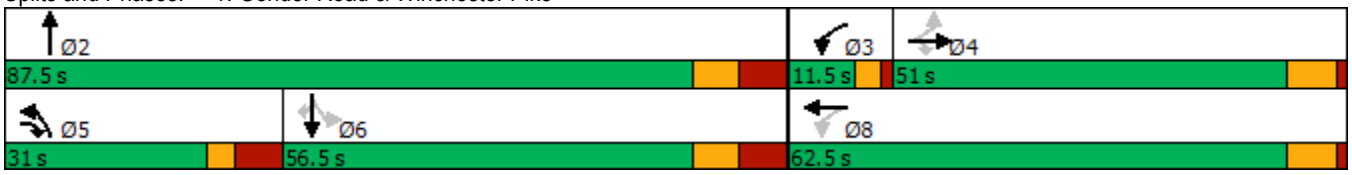
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	426	29	811	152	32	28	540	1205	46	83	1012	75
Future Volume (vph)	426	29	811	152	32	28	540	1205	46	83	1012	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	1		2	1		0	2		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		55			25			35			50	
Link Distance (ft)		2226			2912			2436			1839	
Travel Time (s)		27.6			79.4			47.5			25.1	
Turn Type	Perm	NA	pm+ov	pm+pt	NA		Prot	NA		Perm	NA	Perm
Protected Phases		4	5	3	8		5	2			6	
Permitted Phases	4		4	8						6		6
Detector Phase	4	4	5	3	8		5	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	7.0	7.0	10.0		7.0	25.0		23.3	23.3	23.3
Minimum Split (s)	20.0	20.0	15.4	11.5	48.9		15.4	35.7		35.7	35.7	35.7
Total Split (s)	51.0	51.0	31.0	11.5	62.5		31.0	87.5		56.5	56.5	56.5
Total Split (%)	34.0%	34.0%	20.7%	7.7%	41.7%		20.7%	58.3%		37.7%	37.7%	37.7%
Yellow Time (s)	5.6	5.6	3.0	3.0	5.6		3.0	5.2		5.2	5.2	5.2
All-Red Time (s)	1.3	1.3	5.4	1.2	1.3		5.4	5.5		5.5	5.5	5.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.9	6.9	8.4	4.2	6.9		8.4	10.7		10.7	10.7	10.7
Lead/Lag	Lag	Lag	Lead	Lead			Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	Min		Min	Min	Min

Intersection Summary	
Area Type:	Other
Cycle Length: 150	
Actuated Cycle Length: 150	
Natural Cycle: 150	
Control Type: Semi Act-Uncoord	

Splits and Phases: 1: Gender Road & Winchester Pike



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	426	29	811	152	32	28	540	1205	46	83	1012	75
Future Volume (veh/h)	426	29	811	152	32	28	540	1205	46	83	1012	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	463	32	882	165	35	30	587	1310	50	90	1100	82
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	441	550	1240	307	345	295	521	1787	68	135	1085	484
Arrive On Green	0.29	0.29	0.29	0.05	0.37	0.37	0.15	0.51	0.51	0.31	0.31	0.31
Sat Flow, veh/h	1337	1870	2790	1781	930	797	3456	3490	133	400	3554	1585
Grp Volume(v), veh/h	463	32	882	165	0	65	587	666	694	90	1100	82
Grp Sat Flow(s),veh/h/ln	1337	1870	1395	1781	0	1727	1728	1777	1846	400	1777	1585
Q Serve(g_s), s	44.1	1.8	38.5	7.3	0.0	3.7	22.6	43.9	44.1	32.7	45.8	5.7
Cycle Q Clear(g_c), s	44.1	1.8	38.5	7.3	0.0	3.7	22.6	43.9	44.1	45.8	45.8	5.7
Prop In Lane	1.00		1.00	1.00		0.46	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	441	550	1240	307	0	640	521	910	945	135	1085	484
V/C Ratio(X)	1.05	0.06	0.71	0.54	0.00	0.10	1.13	0.73	0.73	0.66	1.01	0.17
Avail Cap(c_a), veh/h	441	550	1240	307	0	640	521	910	945	135	1085	484
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.4	38.0	33.8	35.8	0.0	30.9	63.7	28.6	28.6	59.1	52.1	38.2
Incr Delay (d2), s/veh	56.6	0.1	2.0	2.3	0.0	0.1	79.4	3.2	3.1	12.3	30.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	23.5	0.8	13.5	1.4	0.0	1.6	15.6	19.1	20.0	3.8	24.3	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	111.9	38.1	35.9	38.0	0.0	31.0	143.1	31.8	31.7	71.4	82.9	38.4
LnGrp LOS	F	D	D	D	A	C	F	C	C	E	F	D
Approach Vol, veh/h		1377			230			1947			1272	
Approach Delay, s/veh		61.5			36.0			65.3			79.2	
Approach LOS		E			D			E			E	

Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		87.5	11.5	51.0	31.0	56.5		62.5				
Change Period (Y+Rc), s		10.7	* 4.2	* 6.9	* 8.4	10.7		* 6.9				
Max Green Setting (Gmax), s		76.8	* 7.3	* 44	* 23	45.8		* 56				
Max Q Clear Time (g_c+I1), s		46.1	9.3	46.1	24.6	47.8		5.7				
Green Ext Time (p_c), s		13.8	0.0	0.0	0.0	0.0		0.5				

Intersection Summary	
HCM 6th Ctrl Delay	66.5
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.